



PREPARED FOR



# Hedgehog Grove Solar Farm

EIA Scoping Report

DATE  
April 2025

REFERENCE  
0754465



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## Glossary

Term	Description
The Applicant	Hedgehog Grove Solar Farm Limited
The Proposed Development	The Hedgehog Grove Solar Farm
DCO Application	The application for a Development Consent Order for the Proposed Development.
The Site	The area within the Site Boundary i.e. the footprint of the Proposed Development.
Site Boundary	The red line boundary for the Proposed Development's solar PV array, associated development and the area of search for an underground grid connection cable.
Solar PV array	The area proposed to be covered by solar PV modules.
Solar PV module	Individual panels that are used to make the solar PV array.
Cable Options 1-4	Individual Cable Options that are under consideration for use as part of the Proposed Development. References to Cable Options shall be either one or multiple of these options as appropriate in the text.
Cable Corridor Options	The wide corridor incorporating all Cable Options, i.e. the land take of Cable Options 1 to 4.

Term	Description
DCO	An order made under the Planning Act 2008 (as amended) granting development consent.
DCO Limits	The combined area of the Cable Corridor Options and Site Boundary, i.e. the maximum extent of the Proposed Development.
HG1-3	HG1-3 are the three solar PV array sections of the Site as set out in Section 1.1.6.
SoS	Secretary of State

## Acronyms and ABBREVIATIONS

Acronym	Description
AC	Alternating Current
AEP	Annual Exceedance Probability
ALC	Agricultural Land Classification
AIL	Abnormal Indivisible Load
APFP Regulations	The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009
AOT40	Accumulated dose of ozone Over a Threshold of 40 ppb
APIS	Air Pollution Information System
APS	Annual Population Survey
ATC	Automatic Traffic Counts
AQMA	Air Quality Management Area
BBCMU	Braintree, Brentwood, Chelmsford, Maldon, Uttlesford LCA (2006)
BCT	Bat Conservation Trust
BDC	Braintree District Council
BGL	Below Ground Level
BGS	British Geological Survey

Acronym	Description
BMV	Best and Most Versatile
BNG	Biodiversity Net Gain
BOE/D	Barrels of Oil Equivalent per Day
BRES	Business Register and Employment Survey
CCGT	Combined Cycle Gas Turbine
CCRR	Climate Change Resilience Review
CCTV	Closed-Circuit Television
CEMP	Construction Environmental Management Plan
CH <sub>4</sub>	Methane
CIEEM	Chartered Institute of Ecology and Environmental Management
CIRIA	Construction Industry Research and Information Association
CLG	Community Liaison Group
CNP	Carbon, Nature <sub>7</sub> and People
CO <sub>2</sub>	Carbon dioxide
CSM	Conceptual Site Model
CTMP	Construction Traffic Management Plan
CWMP	Construction Waste Management Plan
CWTP	Construction Work Travel Plan
dB	Decibel
dB(A)	A-weighted sound pressure level
DC	Direct Current
DCO	Development Consent Order
DECC	Department of Energy and Climate Change
DfT	Department for Transport

Acronym	Description
DEFRA	Department of Environment, Food and Rural Affairs
DESNZ	Department for Energy Security and Net Zero
DEMP	Decommissioning Environmental Management Plan
DMP	Dust Management Plan
DMRB	Design Manual for Road and Bridges
DoW: CoP	Definition of Waste: Code of Practice
DSM	Digital Surface Model
DTM	Digital Terrain Model
EA	Environmental Agency
EATM	Environmental Assessment of Traffic and Movement (2023)
ECC	Essex County Council
EcIA	Ecological Impact Assessment
eDNA	Environmental Deoxyribonucleic Acid
EIA	Environmental Impact Assessment
ELC	European Landscape Convention
EPA	Environmental Protection Act 1990
EPS	European Protected Species
EPSML	European Protected Species Mitigation Licence
ERM	Environmental Resources Management Ltd
ES	Environmental Statement
ESA	Environmental Site Assessment
EU	European Union
FEED	Front-End Engineering Design
FRA	Flood Risk Assessment
FRAP	Flood Risk Activity Permits

Acronym	Description
GCN	Great Crested Newt
GHG	Greenhouse Gas
GIS	Geographic Information System
GLTA	Ground Level Tree Assessment
GLVIA3	Guidelines for Landscape and Visual Impact Assessment (third edition)
GW	Gigawatt
Ha	Hectares
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle (>7.5T)
HMMP	Habitat Management and Monitoring Plan
HSI	Habitat Suitability Index
IA	Important Areas
IAQM	Institute of Air Quality Management
ICCI	In-Combination Climate Impacts
IEMA	Institute of Environmental Management and Assessment
IMD	Index of Multiple Deprivation
INNS	Invasive Non-Native Species
IPCC	Intergovernmental Panel on Climate Change
IRZ	Impact Risk Zone
km	Kilometres
kV	Kilovolt
L <sub>Aeq,Tr</sub>	Specific sound level - the sound pressure level produced by the specific sound source at assessment location over a given reference time interval.

Acronym	Description
$L_{Aeq,T}$	Residual sound level - the sound pressure level at the assessment location when the specific sound source is not operational.
$L_{Aeq,T}$	Ambient sound level - the totally encompassing sound level in a given situation at a given time, composed of sound from many sources near and afar. The ambient sound comprises the residual sound and the specific sound when present.
$L_{A90,T}$	Background sound level - the sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval.
$L_{Ar,Tr}$	Rating level - the specific sound level plus any adjustment for the characteristic features of the specific sound which will attract attention, which are tonality, impulsivity, intermittency and other sound characteristics.
LAQM	Local Air Quality Management
LCA	Landscape Character Assessment
LCT	Landscape Character Type
LCRM	Land Contamination Risk Management
LEMP	Landscape and Ecological Management Plan
LGV	Light Goods Vehicle (>3.5T and <7.5T)
LiDAR	Lighting Detection and Ranging
LLFA	Lead Local Flood Authority
LNR	Local Nature Reserve
LoGS	Local Geological Sites
LOAEL	Lowest Observable Adverse Effect Level
LPA	Local Planning Authority
LRN	Local Road Network
LSOA	Lower Super Output Area
LV	Low Voltage
LVIA	Landscape and Visual Impact Assessment

Acronym	Description
LWS	Local Wildlife Site
m	Metre
MID	Method Implementation Document
MMP	Materials Management Plan
MV	Medium Voltage
MW	Megawatts
NCA	National (Landscape) Character Areas
NE	Natural England
NF <sub>3</sub>	Nitrogen trifluoride
NGR	National Grid Reference
NH	National Highways
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Oxides of Nitrogen
NPPF	National Planning Policy Framework
NPS EN-1	Overarching National Policy Statement for Energy
NPS EN-3	National Policy Statement for Renewable Energy Infrastructure
NPS EN-5	National Policy Statement for Electricity Networks Infrastructure
NRFA	National River Flow Archive
NSIP	Nationally Significant Infrastructure Project
N <sub>2</sub> O	Nitrous oxide
OEMP	Operational Environmental Management Plan
OS	Ordnance Survey
PC	Parish Council
PEIR	Preliminary Environmental Information Report

Acronym	Description
PFC	Perfluorocarbon
PIA	Personal Injury Accident
PINS	Planning Inspectorate
PPG	Planning Practice Guidance
PM10	Particulate Matter: 10 micron size
PM2.5	Particulate Matter: 2.5 micron size
POC	Point of Connection
PRoW	Public Rights of Way
PRoWMP	Public Rights of Way Management Plan
PV	Photovoltaic
RBMP	River Basin Management Plan
RCA	River Condition Assessment
RIGS	Regionally Important Geological Sites
RQF	Regulated Qualifications Framework
SAC	Special Area of Conservation
SFRA	Strategic Flood Risk Assessment
SF <sub>6</sub>	Sulphur hexafluoride
SMP	Soil Management Plan
SOAEL	Significant Observable Adverse Effect Level
SoCC	Statement of Community Consultation
SPA	Swept Path Analysis
SPD	Supplementary Planning Documents
SPR	Source-Pathway-Receptor
SPZ	Source Protection Zone
SRN	Strategic Road Network

Acronym	Description
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System
SWDS	Surface Water Drainage Strategy
SWMP	Site Waste Management Plan
TCPA	Town and Country Planning Act 1990
TWH	Terawatt-Hour
UDC	Uttlesford District Council
UKHab	UK Habitat Classification
UKPN	UK Power Networks
W	Watts
WFD	Water Framework Directive
WMP	Waste Management Plan
WQMP	Water Quality Monitoring Plan
ZTV	Zone of Theoretical Visibility

## 1. INTRODUCTION

### 1.1 OVERVIEW

- 1.1.1 This Scoping Report has been prepared by Environmental Resources Management Ltd (ERM) on behalf of Hedgehog Grove Solar Farm Ltd (hereafter referred to as 'the Applicant') in relation to a proposed application for development consent under the Planning Act 2008 (hereafter referred to as 'the Application') for the construction, operation, maintenance and decommissioning of Hedgehog Grove Solar Farm (hereafter referred to as 'the Proposed Development').
- 1.1.2 The Proposed Development comprises the installation and operation of solar photovoltaic (PV) generating modules and associated development across a site in the administrative boundaries of Uttlesford District Council (UDC) and Braintree District Council (BDC). The Proposed Development would allow for the generation of more than 50 Megawatts (MW) of electricity and therefore qualifies as a Nationally Significant Infrastructure Project (NSIP). Solar NSIPs require a Development Consent Order (DCO) under Sections 14(1)(a) and 15(2) of the Planning Act 2008 to grant the required permissions for the Proposed Development to be constructed and operated.
- 1.1.3 The Proposed Development will also include underground cabling to enable future grid connection into the existing UK Power Networks (UKPN) Braintree 132 kilovolt (kV) Substation. As part of the iterative design process, several cable corridor options have been identified (hereafter referred to as the 'Cable Corridor Options' collectively or 'Cable Option 1, 2, 3, or 4' individually). A narrow width within the Cable Corridor Options will be required for the cable connection and its construction, including the siting of temporary construction compounds.
- 1.1.4 The Proposed Development Site (hereafter, 'the Site') is shown on **Figure 1.1**. All Figures for this Scoping Report are available within **Appendix A**.
- 1.1.5 The Site (not including the area for the Cable Corridor Options) is located approximately 3.5 kilometres (km) southwest of Braintree, Essex respectively on approximately 255 hectares (ha) of predominantly arable farmland.

- 1.1.6 The Site comprises three connected sections of Solar PV arrays. These three areas, as shown on **Figures 3.1-3.4** are named after the Proposed Development, 'Hedgehog Grove Solar Farm' and allocated a reference number:
- Hedgehog Grove 1 (HG1), located between the A120 in the north and Bartholomew Green in the southeast (centred on National Grid Reference (NGR) TL 71474 21589);
  - Hedgehog Grove 2 (HG2), located between the Flitch Way in the north and Molehill Green in the south (centred on NGR TL 70521 21486); and
  - Hedgehog Grove 3 (HG3), located either side of the Flitch Way and Braintree Road, south of Gransmore Green (centred on NGR TL 69533 21500).
- 1.1.7 Further detail regarding how HG1-3 and Cable Corridor Options are referenced can be found in **Figures 3.5 to 3.9** and **Chapter 3** of this Scoping Report.
- 1.1.8 It is important to highlight that the design of the Proposed Development is still evolving. As a result, potential developable areas have been identified for the siting of key components such as the solar PV modules, Site access tracks, onsite substation and routing of the underground cabling. These areas are not finalised and will be refined as consultation feedback is received and further environmental surveys and assessments are completed. **Figure 1.2** identifies these potentially developable areas. In this figure, the Site Boundary for the Proposed Development including the Cable Corridor Options is denoted by a solid red line (Solar PV arrays) and a dashed red line (Cable Corridor Options). For the purpose of this Scoping Report, the current maximum extent of the land required for the Proposed Development at this point of design is referred to as the 'DCO Limits' as shown in **Figure 1.3**. The Proposed Development would not necessitate all of the land currently shown for the Cable Corridor Options, and the Cable Corridor Options will be narrowed down to a maximum of two alternatives for the ES.
- 1.1.9 An initial layout for the Proposed Development (hereinafter referred to as the 'Indicative Masterplan') can be viewed in **Figure 1.4**.
- 1.1.10 This Environmental Impact Assessment (EIA) Scoping Report supports a formal request for an EIA Scoping Opinion under

Regulation 10(1) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 'EIA Regulations').

## 1.2 REQUIREMENT FOR EIA

- 1.2.1 Section 14(1)(a) of the Planning Act 2008<sup>1</sup> defines "*Nationally Significant Infrastructure Projects*" as including the construction or extension of a generating station. Section 15(1) of the Planning Act 2008<sup>2</sup> specifies that the construction or extension of a generating station is within Section 14(1)(a) only if the generating station is, or is expected to be, within subsection (2), (3), (3A) or (3B). Subsection (2) applies where the capacity of an onshore generating station in England exceeds 50 MW. The Proposed Development exceeds this threshold and therefore constitutes a NSIP and requires an application for development consent.
- 1.2.2 The requirement to undertake an EIA for NSIP developments is transposed into UK law through the EIA Regulations<sup>3</sup>. The EIA Regulations specify which developments are required to undergo EIA and schemes relevant to the NSIP planning process are listed under either 'Schedule 1'<sup>4</sup> or 'Schedule 2'<sup>5</sup>.
- 1.2.3 Developments listed in Schedule 1 must be subject to EIA, while developments listed in Schedule 2 are only subject to EIA if they are considered "*likely to have significant effects on the environment by virtue of factors such as its nature, size or location*". The criteria on which this judgement must be made are set out in Schedule 3<sup>6</sup>.
- 1.2.4 The Proposed Development is a Schedule 2 development under paragraph 3(a) of Schedule 2 of the EIA Regulations as it constitutes an "*industrial installation for the production of electricity, steam and hot water*" and it is considered that due to the Proposed Development's nature, size and location, it has the potential to have significant effects on the environment.
- 1.2.5 The Applicant wishes to confirm under Regulation 8(1)(b)<sup>7</sup> of The Infrastructure Planning (EIA) Regulations that an ES will be provided in respect of the application for development consent for the Proposed Development, as it is considered there is the potential for the Proposed Development to meet the criteria set out in Schedule 3 of the EIA Regulations.

## 1.3 EXISTING BASELINE REPORTING

- 1.3.1 Before the inception of the Proposed Development, the Site was divided into two separate projects located respectively on areas HG1 and HG3. The two previous applications 'Drapers Chase Solar Farm' and 'Poplars Solar Farm' were initially developed as two local planning applications each capable of producing up to 49.9MW of electricity with one electricity connection to Braintree Substation. The Planning Inspectorate confirmed that the two projects form one NSIP, due to the single point of connection and combined generating capacity exceeding 50 MW.
- 1.3.2 The Project team has continued to review land requirements since acquiring the projects from the previous developer, leading to the introduction of additional land parcels. As such, the previous two sites have now been combined to form one site (the Proposed Development). Consequently, some assessments were completed in 2022 for sections HG1 and HG3. This assessment work included:
- Arboriculture Assessment;
  - Agricultural Land Classification Surveys;
  - Cultural Heritage Geophysical Survey Report;
  - Baseline Ecology Report;
  - Flood Risk Assessment;
  - Landscape and Visual Technical Note; and
  - Early Assessment of Site Access.
- 1.3.3 Since these reports were completed in 2022, they do not cover the entire area within the Site Boundary, nor the full range of topics and details required for the Proposed Development's EIA. Therefore, the studies will be updated where appropriate and used to inform the baseline. The 2022 assessment work, where still relevant, is included in **Appendix B** of this Scoping Report.

## 1.4 THE APPLICANT

- 1.4.1 The Proposed Development will be developed and operated by TotalEnergies. TotalEnergies is a global integrated energy company that produces and markets energies: oil and biofuels, natural gas and green gases, renewables and electricity.
- 1.4.2 As part of its ambition to get to net zero by 2050, TotalEnergies is building a world class cost-competitive portfolio combining

renewables (solar, onshore and offshore wind) and flexible assets (combined cycle gas turbine (CCGT), storage) to deliver clean firm power to its customers.

- 1.4.3 They are deploying their Integrated Power strategy in the UK, combining renewable power production and flexible power generation capacities. Their renewable portfolio in the country includes 500 MW of solar projects in development, 4.5 Gigawatt (GW) of offshore wind in development plus 1.1 GW of gross installed capacity from the Seagreen offshore wind farm.
- 1.4.4 TotalEnergies independently maintains its own global standards for the environmental and social performance on projects. This includes commitments relating to managing biodiversity and forests on both new developments and existing sites, reducing freshwater withdrawals and improving water quality, as well as promoting circularity both during design and construction as well as decommissioning.

## 1.5 THE EIA TEAM

- 1.5.1 Regulation 14 (4) of the EIA Regulations requires that, *"in order to ensure the completeness and quality of the environmental statement (a) the applicant must ensure that the environmental statement is prepared by competent experts; and (b) the environmental statement must be accompanied by a statement from the applicant outlining the relevant expertise or qualifications of such experts"*.
- 1.5.2 The scoping and delivery of the EIA for the Proposed Development is being led by ERM with support from other specialist organisations. ERM is a member of the Institute of Environmental Management and Assessment's (IEMA's) EIA Quality Mark, a scheme that allows organisations to make a commitment to excellence in EIA activities and have this commitment independently reviewed.
- 1.5.3 In line with the EIA Regulations, the ES will be prepared by competent experts and will outline the relevant expertise or qualifications of such experts. The sections of this Scoping Report and the environmental topics that will be addressed in the ES will be compiled by EIA practitioners and technical experts from the organisations shown in **Table 1.1**. The ES will also include a



Statement of Competence, outlining the relevant expertise or qualifications of the experts who prepared the ES, in line with Regulation 14(4) of the EIA Regulations.

**Table 1.1 EIA Team**

Chapter Number	Scoping Report Section	Provider/Author
1	Introduction	ERM
2	Policy and Legislative Context	ERM / Quod
3	The Proposed Development	ERM
4	Site Selection and Alternatives	ERM
5	Consultation	ERM / Alpaca Communications
6	Environmental Impact Assessment	ERM
7	Air Quality	ERM
8	Biodiversity and Nature Conservation	ERM
9	Climate Change and Greenhouse Gas Assessment	ERM
10	Cultural Heritage and Archaeology	ERM
11	Ground Conditions and Land Quality	ERM
12	Landscape and Visual	ERM
13	Noise and Vibration	ERM / HIMLY
14	Socio-Economics and Land Use	ERM
15	Traffic and Transport	ERM / The Transportation Consultancy
16	Water Resources and Flood Risk	ERM
17	Other Environmental Topics	ERM
18	Cumulative Effects Assessment	ERM
19	Proposed Scope of the EIA	ERM
20	Structure of the ES	ERM

## 1.6 CONTENTS AND PURPOSE OF THIS SCOPING REPORT

- 1.6.1 In accordance with Regulation 8(1)(b) of the EIA Regulations, the Applicant intends to submit an ES for the Proposed Development as part of the application for a DCO. **Chapters 7-18** of this Scoping Report outline the scope and methodology of the technical assessments being conducted. These assessments will comprehensively evaluate any potential significant impacts and identify appropriate mitigation strategies during the construction, operational and decommissioning phases. Additionally, the Scoping Report details which environmental topics are suggested to be excluded from the EIA process, along with explanations as to why these aspects are not expected to lead to significant environmental effects.
- 1.6.2 The purpose of the Scoping Report is to provide environmental information to the Planning Inspectorate to support a request for a Scoping Opinion to be adopted by the Planning Inspectorate (on behalf of the Secretary of State (SoS)), in accordance with Regulation 10(1) of the EIA Regulations and following formal consultation with statutory environmental bodies by the Planning Inspectorate. This Scoping Report has been prepared in accordance with EIA Regulation 10(3) and the Planning Inspectorate's Advice Note Seven<sup>8</sup> which specify that a request for a Scoping Opinion should include the elements detailed in **Table 1.2**.

**Table 1.2 Information to be included in an EIA Scoping Request in line with EIA Regulation 10<sup>(3)</sup>**

Information required	Where Information is provided in this Scoping Report
(a) a plan sufficient to identify the land.	Provided in <b>Figure 1.1</b> .
(b) a description of the Proposed Development, including its location and technical capacity.	Provided in <b>Chapter 3</b> .
(c) an explanation of the likely significant effects of the development on the environment.	Provided within <b>Chapters 7 to 18</b> .

Information required	Where Information is provided in this Scoping Report
<i>(d) such other information or representations as the person making the request may wish to provide or make.</i>	Provided throughout this Scoping Report. This Scoping Report, and the accompanying figures and appendices, represent the full suite of information provided for the Scoping Request.

1.6.3 The Planning Inspectorate's Advice Note Seven also advises that the Scoping Report must include the information provided in **Table 1.3**.

**Table 1.3 Information advised to be included in an EIA Scoping Request in line with Planning Inspectorate's Advice Note Seven.**

Information Required	Where Information is Provided in this Scoping Report
<b>The Proposed Development</b>	
An explanation of the approach to addressing uncertainty where such remains in relation to elements of the Proposed Development e.g. design parameters.	Detailed in Section 6.8 of <b>Chapter 6</b> .
Referenced plans presented at an appropriate scale to convey clearly the information and all known features associated with the Proposed Development.	Figures detailing the Site Location, the Application Boundary, and Environmental Considerations are all provided in <b>Appendix A</b> .
<b>EIA Approach and Topic Areas</b>	
An outline of the reasonable alternatives considered and the reasons for selecting the preferred option.	Detailed in Section 4.1 in <b>Chapter 4</b> .
A summary table depicting each of the aspects and matters that are requested to be scoped out allowing for quick identification of issues.	Provided in <b>Appendix F</b> .
A detailed description of the aspects and matters proposed to be scoped out of	Provided in <b>Appendix F</b> , and within the 'Technical Scope

Information Required	Where Information is Provided in this Scoping Report
further assessment with justification provided.	and Approach to EIA' Section in <b>Chapters 7 to 18.</b>
Results of desktop and baseline studies where available and where relevant to the decision to scope in or out aspects or matters.	Provided within the 'Preliminary Baseline Conditions' in <b>Chapters 7 to 18.</b>
Aspects and matters to be scoped in, the report should include details of the methods to be used to assess impacts and to determine significance of effect e.g. criteria for determining sensitivity and magnitude.	Provided within the 'Technical Scope and Approach to EIA' in <b>Chapters 7 to 18.</b>
Any avoidance or mitigation measures proposed, how they may be secured and the anticipated residual effects.	Provided within the 'Potential Significant Effects and Mitigation' in <b>Chapters 7 to 18.</b>

- 1.6.4 The Scoping Report identifies issues considered 'not significant', which do not require formal assessment as part of the EIA. These issues are proposed to be excluded from the EIA (referred to as 'Scoped Out'), and this is clearly outlined in the report and summarised in **Appendix F.**
- 1.6.5 The Scoping Report serves the purpose of inviting early consultation comments on the EIA approach and the proposed content of the ES. Additionally, feedback received from consultees in response to this Scoping Report will inform the evolution of the development design, the EIA methodology, and the development programme. The handling of these responses will be reported in the topic chapters of the PEIR and ES. A Consultation Report will be submitted as part of the DCO application. This report will collate responses from the consultation process and explain how these responses have been considered in the Proposed Development's design and planning.
- 1.6.6 This Scoping Report includes the following supporting Appendices:
- Appendix A – Figures;
  - Appendix B – Existing Baseline Assessments

- Appendix C – Commitments Register;
- Appendix D – Cumulative Developments;
- Appendix E – Cultural Heritage Designated and Non-Designated Asset Baseline; and
- Appendix F – Solar Scoping Table.

## 2. POLICY AND LEGISLATIVE CONTEXT

### 2.1 INTRODUCTION

- 2.1.1 This section sets out the legislative and policy framework within which the Application is being proposed and developed. The Proposed Development will be progressed taking account of policies at the national and local level.

### 2.2 DEVELOPMENT CONSENT LEGISLATION

- 2.2.1 As set out in Section 1.1.2, the Proposed Development is considered as an NSIP under Sections 14(1)(a) and 15(1) and (2) of the Planning Act 2008<sup>9</sup> as an onshore generating station in England, exceeding 50 MW.
- 2.2.2 Regulation 8(1) of the EIA Regulations requires the Applicant to do one of the following before carrying out statutory consultation under Section 42 of the Planning Act 2008:
- "a) ask the Secretary of State to adopt a screening opinion in respect of the development to which the application relates; or*
- b) notify the Secretary of State in writing that the person proposes to provide an environmental statement in respect of that development."*
- 2.2.3 As the Applicant has concluded that the Proposed Development does require an EIA, this Scoping Report represents a notification under Regulation 8(1)(b) that the Applicant will prepare and submit an Environmental Statement (ES) in support of the DCO Application without a prior request for a Screening Opinion.
- 2.2.4 Following the completion of the surveys, assessments, and consultation processes outlined in this Scoping Report, an application for a DCO will be made to the SoS for determination in accordance with the Planning Act 2008. The DCO Application will be accompanied by an ES, in accordance with Regulation 5(2)(a) of the Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 ('APFP Regulations')<sup>10</sup>. The ES will set out the methods and findings of a comprehensive EIA undertaken in line with the EIA Regulations.

- 2.2.5 Other legislation applicable to specific environmental topics is referred to in the relevant sections of this Scoping Report.

## 2.3 NATIONAL POLICY

### National Policy Statements

- 2.3.2 In accordance with Section 104(2) of the Planning Act 2008, the SoS is required to have regard to the relevant National Policy Statement (NPS) where it has effect, amongst other matters, when deciding whether or not to grant a DCO.
- 2.3.3 The SoS must decide any application for the Proposed Development in accordance with the Overarching National Policy Statement for Energy (EN-1) (NPS EN-1), the National Policy Statement for Renewable Energy (EN-3)<sup>11</sup> (NPS EN-3) and the National Policy Statement for Electricity Networks Infrastructure (NPS EN-5)<sup>12</sup>. These NPSs were revised in 2023 and came into force on 17 January 2024.

### **Overarching National Policy Statement for Energy (EN-1)**

- 2.3.4 EN-1 sets out the national policy for delivering major energy infrastructure in England and Wales. The NPS has effect, in combination with the relevant technology specific NPSs, EN-3 and EN-5, of providing the primary basis for decisions made by the SoS.
- 2.3.5 Applicable to the Proposed Development, paragraph 3.3.20 states “a *secure, reliable, affordable, net zero consistent system in 2050 is likely to be composed predominantly of wind and solar*”.
- 2.3.6 Paragraph 3.3.62 states “*Government has concluded that there is a critical national priority (CNP) for the provision of nationally significant low carbon infrastructure.*”
- 2.3.7 Section 4.2 confirms that this includes solar.

### **National Policy Statement for Renewable Energy Infrastructure (EN-3)**

- 2.3.8 The NPS for Renewable Energy Infrastructure (EN-3) is to be read in conjunction with EN-1. It provides the primary basis for decisions by the SoS on applications received for nationally significant renewable energy infrastructure.
- 2.3.9 Paragraph 2.10.9 commits the government to “*sustained growth in solar capacity to ensure that we are on a pathway that allows us to meet net zero emissions by 2050. As such, solar is a key part of the*”

*government's strategy for low-cost decarbonisation of the energy sector".*

- 2.3.10 Paragraph 2.10.10 repeats that the government expects "a five-fold increase in combined ground and rooftop solar deployment by 2035 (up to 70GW)."

### **National Policy Statement for Electricity Networks Infrastructure (EN-5)**

- 2.3.11 The NPS for Electricity Networks Infrastructure (EN-5) is to be read in conjunction with EN-1.
- 2.3.12 NPS EN-5 is relevant to the Proposed Development as paragraph 1.6.1 of the policy recognises electricity networks as "*transmission systems (the long distance transfer of electricity through 400kV and 275kV lines), and distribution systems (lower voltage lines from 132kV to 230V from transmission substations to the end-user) which can either be carried on towers/poles or undergrounded*" and "*associated infrastructure, e.g. substations (the essential link between generation, transmission, and the distribution systems that also allows circuits to be switched or voltage transformed to a useable level for the consumer) and converter stations to convert DC power to AC power and vice versa*".
- 2.3.13 The policy statement recognises that new electricity networks required for electricity generation, storage and interconnection infrastructure are vital to achieving the nation's transition to net zero. With regard to cable routing, paragraph 2.10.1 of EN-5 requires applicants to "*consider and address routing and avoidance/minimisation of environmental impacts both onshore and offshore at an early stage in the development process*".
- 2.3.14 NPS EN-1, NPS EN-3 and NPS EN-5 will be taken into consideration within the EIA process. A summary of the relevant considerations for each technical assessment is provided for each environmental topic (**Chapters 7 to 18** of this Scoping Report).

### **National Planning Policy Framework**

- 2.3.15 The National Planning Policy Framework (2024) (NPPF) sets out the Government's planning policies for England and how these are to be applied. It states that planning law requires applications to be determined in accordance with the Development Plan for the relevant

area unless material considerations indicate otherwise. Paragraph 2 states the NPPF '*... is a material consideration in planning decisions*'.

- 2.3.16 Paragraph 5 states that the NPPF does not contain specific policies for NSIPs. These are to be determined in accordance with the decision-making framework set out in the Planning Act 2008 and relevant national policy statements for nationally significant infrastructure, as well as any other matters that are considered both important and relevant (which may include the NPPF). It also states that NPSs form part of the overall framework of national planning policy and may be a material consideration in decisions on planning applications. As such, the EIA for the Proposed Development will have regard of the relevant policies of the NPPF as part of the overall framework of national policy.

## 2.4 LOCAL POLICY

- 2.4.1 Policies in Local Plans are frequently considered 'important and relevant' matters and can influence the content of local impact reports which the Local Planning Authorities will produce following submission of the DCO application. The SoS must also have regard to Local Plans in its decision making in accordance with Section 104(2) of the Planning Act 2008.
- 2.4.2 The Proposed Development is located within the administrative areas of UDC and BDC. The relevant local planning policy from these Local Planning Authorities (LPAs) is outlined below.
- 2.4.3 The key local planning policies that will be considered during the EIA process, where relevant to each environmental topic, include:
- Uttlesford Local Plan 2005;
  - Braintree District Local Plan 2033;
  - Uttlesford Local Plan 2021 – 2041 (emerging); and
  - Felsted Neighbourhood Plan.
- 2.4.4 In addition, relevant Supplementary Planning Documents (SPDs) will be considered.

### 3. THE PROPOSED DEVELOPMENT

#### 3.1 SITE OVERVIEW

- 3.1.1 The Proposed Development is located within the administrative areas of Uttlesford District Council (UDC) and Braintree District Council (BDC). The rationale for selecting the Site is described in **Chapter 4**.
- 3.1.2 This chapter gives an overview of the solar PV array areas and the Cable Corridor Options land within the Site Boundary individually. The Cable Corridor Options have been identified for the location of underground cable routes to connect the Proposed Development to the UKPN Braintree 132 kV Substation.
- 3.1.3 Four Cable Corridor Options are identified in this Scoping Report. These corridors will be refined as the Proposed Development's design progresses and only two will be carried forward into the PEIR and ES.
- 3.1.4 The solar PV arrays can be viewed in **Figure 1.4** and Cable Corridor Options in **Figures 3.5-3.9**.
- 3.1.5 Further topic-specific baseline descriptions are included within **Chapters 7-19**.

#### 3.2 SITE AND SURROUNDING AREA

- 3.2.1 The largest settlement in the vicinity of the Site is Braintree, located approximately 3.5 km northeast of the Site Boundary. The majority of the Site falls within the UDC boundary, with sections of the solar PV array and Cable Corridor Options extending into the BDC boundary to serve the Proposed Development's connection to the existing UKPN Braintree 132 kV Substation.
- 3.2.2 The land within the Site Boundary covers an approximate area of 255 hectares (ha) and comprises predominantly arable fields, interspersed within farmsteads and woodland blocks which sit outside the developable area.
- 3.2.3 For ease of reference, the Site is divided into three areas, interconnected by cabling. These three areas, as shown on **Figures 3.2 to 3.8**, are identified as follows:
- Hedgehog Grove 1 (HG1);
  - Hedgehog Grove 2 (HG2); and
  - Hedgehog Grove 3 (HG3).

- 3.2.4 The solar PV array will be accompanied by the underground cables. There are currently four proposed Cable Corridor Options to the existing UKPN Braintree 132 kV Substation. These are presented as Cable Option 1, 2, 3 or 4. Further detail on the description and rationale behind these Cable Corridor Options is detailed in **Chapter 4** of this Scoping Report.

### 3.3 ENVIRONMENTAL CONTEXT FOR HG1-HG3

- 3.3.1 The following sections provide the environmental context for each of the three sections in turn. An overview of the environmental and planning designations for the Site and surrounding area is illustrated on **Figure 3.12**.

#### HG1

- 3.3.2 HG1 is located within the administrative areas of UDC and BDC and is centred around National Grid Reference TL 71474 21589. It can be accessed via the A120 and lies approximately 500 m east of Little Common and Bartholomew Green. HG1 covers an area of approximately 64 ha.
- 3.3.3 HG1 broadly consists of agricultural fields, small pockets of woodland and isolated farmsteads and dwellings. To the east, HG1 is bordered by Mill Lane and further agricultural land beyond, while Fenton Road, a minor road, delineates the northern boundary.
- 3.3.4 The landscape of the section is characterised by arable fields and farmland, interspersed with hedgerows, tree boundaries, and patches of woodland. The western boundary of the parcel abuts the River Ter, which flows southward. As the Environment Agency (EA) flood mapping identifies the entirety of HG1 within Flood Zone 1, it is designated as low risk and has a probability of flooding less than 0.1% annually, meaning less than once in 1,000 years.
- 3.3.5 According to the Natural England (NE) Agricultural Land Classification (ALC) map, the majority of HG1 is Grade 2, with small sections to the east and west classified as Grade 3. An ALC study completed in September 2022 confirmed that the entirety of HG1 is classified as Grade 3a (Good / Best and Most Versatile), with a low potential for contamination from historical activities. The 2022 ALC study also confirmed the soil composition to consist of *"lime-rich loamy and*

*clayey soils with slightly impeded drainage*". The Provisional ALC grades for HG1-3 are illustrated on **Figure 3.10**.

- 3.3.6 HG1 is not situated within or adjacent to any Conservation Areas or designated Green Belt. Adjacent to the northern boundary of HG1 is Flitch Way, a walking route and Local Nature Reserve that stretches for 15 miles along a former railway line from Braintree to Start Hill near Bishop's Stortford. This section serves as an important wildlife corridor and is part of the National Cycle Network Route 16.
- 3.3.7 HG1 is not affected by statutory landscape designations such as National Parks or National Landscapes. There are no statutory designations (Sites of Specific Scientific Interest (SSSI), Ramsar sites or Local Nature Reserves (LNR)) within this section. However, Flitch Way Local Nature Reserve sits adjacent to part of the northern boundary. The next nearest designation is Cuckoo Wood, a Local Nature Reserve located approximately 1.7 km southeast.
- 3.3.8 There are no world heritage sites, battlefields, registered parks and gardens, listed buildings, scheduled monuments or conservation areas within the HG1. The features of note in proximity to HG1 are:
- Grade II Listed Buildings associated with Draper's Farm and Fenton's Farm. Including Draper's Farmhouse, a farm outbuilding and a building known as Rooks;
  - Several Grade II Listed Buildings within a 1 km radius of HG1, primarily located around the villages of Rayne, Bannister Green, Felsted and the Hamlet of Molehill Green; and
  - Two Scheduled Monuments are located approximately 2 km southwest. Both are associated with Leez Augustinian Priory, fishponds and Tudor Mansion.
- 3.3.9 Geophysical Surveys were completed on HG1 in 2023, the results of these surveys are discussed in **Chapter 10**.
- 3.3.10 Several Public Rights of Way (PRoWs) cross through HG1, as illustrated on **Figure 3.11**, including:
- Footpaths Felsted 21, 24 and 25;
  - Footpaths Rayne 22 and 39; and
  - Bridleway Rayne 45.

## HG2

- 3.3.11 HG2 is entirely located within the administrative area of UDC and is centred around National Grid Reference TL 70521 21486. It can be accessed via the A120 or Rayne Road and is situated approximately 300 m north of Rayne Road and the village of Molehill Green.
- 3.3.12 HG2 comprises approximately 89 ha of predominately arable field and farmland, interspersed with hedgerows, tree boundaries and patches of woodland. The NE ALC map indicates that the land within HG2 is identified as majority Grade 2. Further ALC surveys will be undertaken to confirm the ALC grade.
- 3.3.13 The EA flood mapping confirms that a proportion of the western area of HG2 falls within Flood Zones 2 and 3 (medium to high risk of flooding) of the River Ter which runs along the eastern boundary of the field. However, the majority of HG2 falls within Flood Zone 1, it is designated as low risk and has a probability of flooding less than 0.1% annually, meaning less than once in 1,000 years.
- 3.3.14 HG2 is not affected by statutory landscape designations such as National Parks or National Landscapes and the section does not sit within the Green Belt. There are also no statutory ecological designations (SSSI, Ramsar sites or LNRs) within HG2. However, Flitch Way Local Nature Reserve abuts the northern boundary, as shown on **Figure 3.12**.
- 3.3.15 There are no world heritage sites, battlefields, registered parks and gardens, listed buildings, scheduled monuments or conservations areas within the Site Boundary. Two Grade II listed buildings are within approximately 1 km of HG2, including:
- Frenches Farm barn farmhouse and other associated buildings; and
  - Slough House.
- 3.3.16 There are several PRowS across HG2, including footpaths and bridleways. These routes comprise the following:
- Footpaths Felsted 19, 21, 25 and 115;
  - Bridleways Felsted 20 and 130; and
  - Bridleway Rayne 44.

## HG3

- 3.3.17 HG3 is entirely located within the administrative area of UDC and is centred around National Grid Reference TL 69533 21500. It can be accessed via the A120 and B1471. Covering approximately 102 ha, HG3 is located to the east of Braintree Road and southside of Gransmore Green, with the village of Felsted to the west. The B1417 running north-south intersects the northern part of the section.
- 3.3.18 The landscape of HG3 comprises of arable fields, featuring scattered trees, hedgerows and woodland. Overhead lines run through certain parts of the section.
- 3.3.19 The EA flood mapping confirms that the entirety of HG1 sits within Flood Zone 1 of the River Ter and it is designated as low risk and has a probability of flooding less than 0.1% annually, meaning less than once in 1,000 years.
- 3.3.20 The NE ALC map shows the majority of HG3 as Grade 2, with a small confirmed that the entirety of HG3 is classified as Grade 3a (Good / Best and Most Versatile). Further ALC surveys will be undertaken to confirm the grading.
- 3.3.21 HG3 does not fall within any statutory or non-statutory ecological designations. However, the Flitch Way Local Nature Reserve divides HG3, running east-west across HG3. The next nearest designation is the Cuckoo Wood Local Nature Reserve located approximately 3 km east of HG3. HG3 also lies on the edge of the Impact Risk Zone for Garnetts Wood / Barnston Lays SSSI. HG3 does not fall within any statutory landscape designations such as National Park or National Landscape and is not within the Green Belt.
- 3.3.22 There are no world heritage sites, battlefields, registered parks and gardens, listed buildings, scheduled monuments or conservation areas within the section. There are several heritage assets located within 1 km of the HG3, including:
- Grade II listed buildings associated with the Villages of Bannister Green, Watch House Green and Gransmore Green; and
  - Felsted Conservation Area.
- 3.3.23 There are several PRow that cross HG3, including:
- Footpaths Felsted 8, 15, 16, 17, 18, 44 and 115; and
  - Bridleway Felsted 52 and 130.

### 3.4 CABLE CORRIDOR OPTIONS

- 3.4.1 This section describes each Cable Corridor Option in sequence. Several options have been identified for this Scoping Report, leading to the delineation of a broad Cable Corridor Options boundary that encompasses the maximum extent of the combined land take for the Cable Corridor Options. It is important to note that all Cable Options require the crossing of National Rail's Braintree Branch Line.
- 3.4.2 Where Cable Options cross greenfield land, such as agricultural fields, a 250 m search area has been established based on professional judgement and relevant guidance. This search area has been implemented to ensure a route with the least environmental impact can be selected. Where the Cable Corridor Options follow public highways, a 50 m buffer has been established to ensure any obstacles that may hinder cable placement can be avoided.
- 3.4.3 The Cable Corridor Options will be refined down to a maximum of two options for the ES prior to statutory consultation based on the findings of detailed engineering works, EIA studies, landowner agreement and other relevant investigations. An initial environmental baseline description of the Cable Corridor Options is available in **Chapters 7-19** of this Scoping Report, with a higher level of detail reserved for the ES. The Cable Corridor Options are available in **Figures 3.5-3.9**.

#### Cable Option 1

- 3.4.4 Cable Option 1 proposes to utilise the approved Willows Green Solar Park to locate cable trenches in parallel where feasible. Clearstone Energy's Willows Green Solar Park, located near Braintree, is a 49.9 MW capacity solar farm with on-site battery energy storage. Planning permission for the project was granted by UDC in August 2022, with construction scheduled for 2025. The Cable Option 1 route is shown in **Figure 3.6**. The Willows Green Solar Park is situated approximately 300 m east of the Site and is designed to connect to the National Grid 400 kV Braintree Substation, which is on the same site as the Proposed Development's point of connection (UKPN Braintree 132 kV Substation).
- 3.4.5 For this option, the installation of the Proposed Development's 132 kV cables would be in parallel to the trenches used for the construction of the Willows Green Solar Park cable route. This approach is

advantageous as it reduces environmental disruption by following land that would be previously disturbed. Cable Option 1 potentially minimises the number of impacted local receptors. For example, by installing conduits or ducts beneath roads and railways during the construction of Willows Green Solar Park, these can be left in place for the Proposed Development to utilise, as the projects share a connection location. This minimises the need for additional construction under road and rail infrastructure, offering a more efficient and less intrusive method. The Applicant is in discussions with Clearstone Energy to explore the options for co-locating the Proposed Development's 132 kV cable along the Willows Green Solar Park cable route.

## Cable Option 2

- 3.4.6 Cable Option 2 primarily utilises public highways. The route follows Rayne Road southeast, then continues east through Mole Hill Green. It then meets Main Road, heading south, before changing direction to the northeast along Blackley Lane. The route follows the A131 north, then transitions to London Road until it reaches Baker's Lane and Buck Hill. From there, the cable follows a short section of greenfield land up to the point of connection. The Cable Option 2 route is shown in **Figure 3.7**.
- 3.4.7 This Cable Option was identified to minimise disruption to greenfield land. By following public highways, the route aims to reduce the environmental impact of the Proposed Development by limiting trenching to already developed areas. As detailed above, a small section of the route crosses greenfield land known to be arable farmland. However, the temporary nature of the construction activities would limit disruption.

## Cable Option 3

- 3.4.8 Cable Option 3 involves crossing a combination of public highways and greenfield land. The route follows Rayne Road southeast towards Mole Hill Green, then continues east across several agricultural fields until it meets Blackley Lane. It then crosses the A131, connects to Notley Road, and continues across agricultural fields until reaching the point of connection. The Cable Option 3 route is shown in **Figure 3.8**.

- 3.4.9 As this route crosses greenfield land, a 250 m search area has been applied where necessary. Crossing agricultural fields offers high levels of adaptability. For example, identifying a wide land area for cable placement allows for greater flexibility if features or asset of value are identified as the cable can be routed to avoid in the first instance. The construction of the Cable Option 3 on greenfield land would be temporary in duration and the land would be returned to its previous use upon the completion of construction.

#### **Cable Option 4**

- 3.4.10 Cable Option 4 follows public highways throughout its entire route. Initially, it follows the same path as Cable Option 2 until it reaches Notley Road. From there, it continues southeast along Witham Road through Black Notley, meeting Bulford Lane. The route then changes direction to follow Mill Lane north through Tye Green and continues north along Braintree Road to the point of connection. The Cable Option 4 route is shown in **Figure 3.9**.
- 3.4.11 Cable Option 4 minimises adverse impacts on greenfield land and ecological receptors by following public highways. The route primarily follows B roads, thereby limiting interruptions to A roads. It is important to note that this route is not the most direct path to the point of connection; the most direct route would be via the A120. However, it is anticipated that using the A120 would cause more disruption to a greater number of road users than the proposed route through Black Notley and Tye Green.

### **3.5 MAIN ELEMENTS OF THE PROPOSED DEVELOPMENT**

- 3.5.1 Embedding good design has been a key consideration in the design process to date and will continue to inform decisions through to DCO submission. The design approach adopted has been informed by the 'Design Principles for National Infrastructure' guidance published by the National Infrastructure Commission. This includes the adoption of project specific design principles under the headings of:
- Climate - Infrastructure must help set the trajectory for the UK to achieve net zero greenhouse gas emissions by 2050 or sooner and be capable of adapting to climate change.

- People – Projects should be human scale, instinctive to use and seek opportunities to improve the quality of life for people who live and work nearby.
- Places – Schemes should provide a sense of identity for communities, supporting the natural and built environment and enriching ecosystems.
- Value – Value should be added beyond the main purpose of the infrastructure, solving problems well and achieving multiple benefits.

3.5.2 The main elements of the Proposed Development comprise the following key components:

- Solar PV modules;
- Onsite Substation;
- Medium voltage power stations (comprising inverters and transformers);
- On-site cabling;
- Fencing and Security;
- Lighting;
- Site Access and Access Tracks;
- Surface Water Drainage;
- Temporary Construction Compounds;
- Underground Grid Connection Cable; and
- Planting and vegetation management, and ecological mitigation /enhancement measures.

3.5.3 **Table 3.1** below outlines the different types and dimensions of infrastructure, summarising the expected maximum parameters of the components related to the Proposed Development.

### Summary of Component Dimensions

**Table 3.1 Anticipated Equipment Maximum Values and Dimensions**

Equipment	Sub-type	Maximum Values
Solar PV modules.	Tracker or fixed	– Height: up to 3.5 m from ground level.

Equipment	Sub-type	Maximum Values
Onsite Substation.	HV Substation compound	<ul style="list-style-type: none"> <li>Length: up to 58 m.</li> <li>Width: up to 26 m.</li> <li>Height: up to 9 m.</li> </ul>
Medium voltage power stations.	Inverters Stations (located in power station containers)	Power stations container dimensions: <ul style="list-style-type: none"> <li>Length: up to 6.1 m.</li> <li>Width: up to 2.4 m.</li> <li>Height: up to 3.5 m.</li> </ul>
	LV/MV Transformers	<ul style="list-style-type: none"> <li>Located in power station container.</li> </ul>
	Switchgear	<ul style="list-style-type: none"> <li>Located in power station container.</li> </ul>
On-site cabling.	Low Voltage	<ul style="list-style-type: none"> <li>Between solar PV modules and inverters: 1.5/1.8 kV cables</li> <li>Between inverters to on-site transformers: 0.4/1 kV.</li> </ul>
	High Voltage	<ul style="list-style-type: none"> <li>Between transformers and switchgear: 33 kV.</li> <li>Between switchgear and electrical transmission equipment: 33 kV.</li> <li>Between Onsite Substation and UKPN Braintree 132 kV Substation: 132 kV.</li> </ul>
	Cable trenching	<ul style="list-style-type: none"> <li>Width: up to 1 m.</li> <li>Depth: up to 1.5 m.</li> </ul>
Fencing and Security.	Fencing	<ul style="list-style-type: none"> <li>Height: up to 2.5 m.</li> </ul>
	CCTV	<ul style="list-style-type: none"> <li>Height: up to 5 m.</li> </ul>
Lighting.	Onsite Substation lighting	<ul style="list-style-type: none"> <li>Motion activated direction lighting.</li> </ul>

## Solar PV Modules

- 3.5.4 Solar PV modules are designed to transform sunlight into direct current (DC) electricity. These individual modules are typically composed of a sequence of PV cells protected by a layer of hardened glass. As the field of PV technology continues to evolve rapidly, other types of PV technologies may become available by the time of construction. The frames of these modules are usually constructed from anodised aluminium or steel. The most advanced solar PV modules currently under development are capable of generating up to 800 watts (W), however there is potential for higher output at the time of construction depending on technological advancements. These modules are attached to a support structure in clusters, referred to as 'strings'. The quantity and arrangement of modules in each string will be influenced by several factors, including the need to minimise ground disturbance. Additionally, some flexibility will likely be required to adapt to future technological advancements.
- 3.5.5 The ES will consider the solar PV module orientation that represents the worst-case scenario in terms of potential environmental impacts where relevant. As the Proposed Development design progresses, the module orientation (if fixed) or the most suitable tracking technology will be determined based on economic, environmental, and technical factors.
- 3.5.6 At this stage of design, it is anticipated that the solar PV modules will be a Bifacial Single-axis Tracker technology, measuring up to a maximum of 3.5 m in height above the ground level. The ES will evaluate the worst-case scenario, such as when the solar PV modules are installed at their maximum height.

## Onsite Substation and Associated Components

- 3.5.7 The Onsite Substation comprises Main Power Transformer (132/33kV), Primary Switchgear (33kV), Reactive power compensator, Earthing Transformer and Emergency Diesel Generator all contained within a compound.
- 3.5.8 As the design of the Proposed Development progresses, the configuration of the supporting infrastructure will be guided by environmental and technical considerations. Avoidance will be the primary strategy for environmental protection. When avoidance is not feasible, techniques such as Horizontal Directional Drilling (HDD)

could be employed if required. A reasonable worst-case scenario will be evaluated and presented in the ES.

### **Medium voltage power stations (inverter, transformer and switchgear)**

- 3.5.9 A medium voltage power station (hereafter referred to as the 'MV Station') includes a DC/AC inverter and a Low Voltage (LV) / Medium Voltage (MV) transformer, along with switchgear. These MV Stations are typically distributed throughout the Proposed Development at regular intervals. The external finish of the MV Stations will be adjusted to match the surrounding environment. As the design of the Proposed Development progresses, the configuration of equipment will be determined based on environmental and technical considerations.
- 3.5.10 A preference of technology and reasonable worst-case scenario will be evaluated and presented in the ES.

### ***Inverter Stations***

- 3.5.11 Inverters are required to convert the DC electricity collected by the solar PV modules into AC, enabling the generated electricity to be exported to the National Grid. The inverters are sized to handle the voltage and intensity output from the strings of solar PV modules and to remain Grid Code compliant. It is currently anticipated that the inverters would either be a central inverter system located within inverter stations (structures similar in appearance to shipping containers), or a string system located either beneath the solar PV modules or at the end of a solar PV module (attached directly to the module table or anchored to the ground).
- 3.5.12 As the Proposed Development's design progresses, a preference for inverter technology will be selected, and a reasonable worst-case scenario will be presented in the ES.

### ***LV/MV Transformers***

- 3.5.13 LV/MV transformers are essential for controlling the voltage of electricity generated across the solar PV array before it reaches the Onsite Substation. The transformers can be either 'outdoor or indoor'. They may be positioned outdoors or housed in per station container-type enclosures.

## **Switchgear**

- 3.5.14 Switchgear, which includes electrical disconnect switches, fuses, or circuit breakers, is used to control, protect, and isolate electrical equipment. It serves both to de-energise equipment for maintenance and to clear downstream faults. Typically, switchgear is located within or adjacent to the transformer housing.

## **On-site Cabling**

- 3.5.15 Low-voltage electrical cabling on-site is required to link the solar PV modules to inverters, typically via 1.5/1.8 kV cables, and the inverters to the on-site transformers, typically via 0.4/1 kV cables.
- 3.5.16 Cables with a higher voltage (around 33 kV) are then needed, for example between the transformers and the switchgear. The size of the required trenches would also vary depending on the number of circuits they contain, but they could typically be up to 1 m wide and up to 1.5 m deep (depending on purpose/type of existing land requiring trenching). Where feasible, the higher voltage cables would share trenches with the lower voltage cables along the same route.
- 3.5.17 The cabling between the PV modules and the inverters would typically need to be above ground level (along a row of racks), affixed to the mounting structure, and then placed underground (between racks and at the inverter's input). All other on-site cabling would be underground wherever possible.
- 3.5.18 Data cables would also be installed, typically parallel to the electrical cables, to facilitate monitoring during operation, such as gathering solar data from pyranometers and inverters.

## **Underground cabling to UKPN Braintree 132 kV Substation**

- 3.5.19 The electricity generated by the Proposed Development is expected to be imported and exported via 132 kV cabling from the Onsite Substation to the UKPN Braintree 132 kV Substation. As discussed in Section 3.4.1 the potential Cable Corridor Options for connecting to the UKPN Braintree 132 kV Substation are being investigated through the design process. The maximum dimension of the cable trench required to install the cabling is referred to in **Table 3.1**. As a worst case it is anticipated that open cut trenching would be used to install the 132kv cable, but it is likely that that some HDD would be required

in more constrained areas such as under the National Rail's Braintree Branch Line.

- 3.5.20 Whilst there are a small number of residential properties and settlements shown within and adjacent to the area of search for underground grid connection cable, no cables would be installed under residential properties or within residential gardens. The public highway within these areas is being considered as part of the ongoing cable corridor options investigation.

### **Fencing and Security**

- 3.5.21 The solar PV array would be surrounded by a perimeter fence. This fence is expected to be a 'deer fence' or another type of mesh security fencing that will be keeping with the landscape. It is also likely that closed-circuit television (CCTV) systems, mounted on poles and directed internally, would be installed around the perimeter of the solar PV array.
- 3.5.22 The CCTV cameras would have fixed viewing angles and will be positioned to face along the fence.
- 3.5.23 MV Stations and the Onsite Substation would be enclosed by a security fence likely comprising palisade fencing. Any landscaping and biodiversity works would be designed to avoid compromising the effectiveness of the CCTV or security fencing.

### **Lighting**

- 3.5.24 Lighting would be installed in the Onsite Substation and would be used only as needed for maintenance and security purposes. All lighting would be motion-activated and directed into the compounds, avoiding tree lines, watercourses, ponds, and other areas to minimise impact on fauna and potential sensitive residential receptors. Mobile temporary lighting may be used across the wider Site during hours of darkness for urgent maintenance or repairs.

### **Site Access and Access Tracks**

- 3.5.25 The highest traffic volumes would occur during the construction and decommissioning phases, with only minimal maintenance access required during operation. As a minimum, vehicle access would be required into the solar PV array. As the design of the Proposed

Development progresses, operational access will be confirmed in consultation with Essex County Council.

- 3.5.26 The proposed locations for the Site access points are illustrated in **Figure 1.4**, indicating up to three access points. Construction accesses will be taken from existing field accesses where possible, to minimise the amount of potential vegetation required. Formation of some new accesses maybe required, and the impacts of these will be assessed in the ES. Final construction accesses will be confirmed as the design progresses and in consultation with the relevant stakeholders and authorities including landowners.
- 3.5.27 Additionally, the transportation of abnormal loads, such as transformers, would be necessary across the Site. The routing and access points for these loads will be established as the design of the Proposed Development develops and in consultation with the relevant statutory consultees.

### **Surface Water Drainage**

- 3.5.28 An Outline Surface Water Drainage Strategy will be formulated in conjunction with the overall design of the Proposed Development and submitted as part of the DCO Application. It will specify measures to demonstrate the control of surface water to avoid any escalation in flood risk. This strategy will be further refined into a Detailed Surface Water Drainage Plan before the commencement of construction, which will have to be substantially in accordance with the Outline Strategy as secured via the DCO. It will propose appropriate methods to control drainage from the new infrastructure necessitated by the Proposed Development (for instance, solar PV arrays, access routes, and hardstanding areas across the Site) and manage any necessary modifications to existing land drainage systems. Drainage systems would also be designed to deal with the supply of water via tanks and water runoff from fire suppression systems in the unlikely event of a fire.
- 3.5.29 The design of new drainage systems will be outlined and assessed in the PEIR and the ES.

### **Temporary Construction Compounds**

- 3.5.30 Temporary compounds would be set up for storing materials, plant, and equipment before commencement of the main construction

works. These compounds would also house staff welfare facilities, waste storage, and wheel washing areas. Adequate lighting would be installed to ensure safety and security.

- 3.5.31 The temporary construction compound locations are yet to be identified and the locations of these temporary construction compounds, taking into account technical and environmental factors as to limit impact on sensitive receptors as well as feedback from consultation and engagement, will be detailed in the DCO application.

### **Landscaping and Biodiversity Works**

- 3.5.32 The Proposed Development will include new native planting, management of existing planting, hedgerow enhancement, and planting of suitable seed mixes amongst the solar PV array. Planting will also be used to provide screening.
- 3.5.33 The Proposed Development aims to provide measurable gain by preserving, enhancing, and creating habitats, considering local priority habitats, linking biodiversity gain to local plans and strategies, and providing visual screening for the Proposed Development.
- 3.5.34 Schedule 15 of the Environment Act 2021 sets out amendments to the Planning Act 2008 in relation to biodiversity net gain. Once they take effect, these amendments will direct the SoS to not grant an application for development consent unless it is satisfied that the "*biodiversity gain objective*" is met in accordance with the relevant biodiversity net gain statement. This means the biodiversity value of the Proposed Development must be at least 10% higher than before. It is expected that biodiversity net gain requirements set out in Schedule 15 of the Environment Act 2021 will have legal effect for NSIPs from November 2025. The Applicant has taken this likely requirement into account as part of its design, and initial Biodiversity Net Gain (BNG) calculations will be carried out to ensure the Proposed Development achieves the necessary gains.
- 3.5.35 A draft version of the Indicative Masterplan has been developed for this Scoping Report (**Figure 1.4**). The Indicative Masterplan illustrates the potential locations of the solar PV array, Onsite Substation location, existing vegetation, and proposed vegetation planting, such as species-rich grassland within the solar PV array and additional planting to increase onsite biodiversity and aid visual

screening throughout. A Landscape Ecological Management Plan (LEMP) will be developed for the ES, outlining these measures and commitments for aftercare.

### 3.6 DEVELOPMENT PROGRAMME

#### Construction

##### ***Construction Programme***

3.6.2 The construction phase is expected to span approximately 24 months. While the exact timeline will depend on various factors, including the submission and determination of the DCO application, it is currently anticipated that construction is to commence in Q3 of 2027 and conclude by Q1 of 2029. Specific construction details will be included in the DCO application. The Grid connection date is currently scheduled for the end of 2027. However, this is subject to the outcome of the ongoing grid connection reform process. Specific construction details including phasing will be included in the DCO application.

##### ***Construction Phase Activities***

3.6.3 The ES will define how construction materials and components of the Proposed Development will be brought to the Site. Construction laydowns will be located within the Site Boundary and set out within the PEIR and ES.

3.6.4 Typical construction activities would likely include, but are not limited to, the following:

- Site preparation and access;
- Transporting construction materials, plant, and equipment;
- Establishing temporary on-site construction compounds and security fencing;
- Upgrading road access and constructing new roads (if required), including construction of internal haul routes;
- Creating cable crossing points where required;
- Enhancing existing tracks and building new access roads within the Site;
- Marking infrastructure component locations;
- Conducting targeted site clearance;

- Drainage engineering;
- Landscape management and early mitigation planting; and
- Construction Infrastructure:
  - Placement of temporary construction units such as compounds, material storage areas, welfare units and required lighting;
  - Installing fencing and CCTV;
  - Piling of solar ground mounts;
  - Assembling module mounting structures and installing solar modules;
  - Installing and setting up electric cabling, substations, inverters, and transformer cabins; and
  - Constructing Onsite Substation compounds, collector compounds, along with equipment installation.

### ***Construction Site Access***

- 3.6.5 It is anticipated that the main construction and decommissioning access points to HG1-3 will be off the Rayne Road, B1417 and School Road. Swept path analysis will be undertaken to determine if land take or road widening is required along the access routes for abnormal load deliveries. This will be assessed in the PEIR and ES. It is anticipated that abnormal loads will be required for the transformers for the Onsite substation.
- 3.6.6 All construction and decommissioning access will be confirmed as the Proposed Development design progresses and in consultation with the Local Highway Authority (Essex County Council) and National Highways, as appropriate.
- 3.6.7 Access tracks will be constructed across the Site.
- 3.6.8 The traffic worst case is expected to be during the peak construction period. Construction traffic predictions and abnormal load assessments will be confirmed in the ES.

### ***Construction Environmental Management***

- 3.6.9 The DCO application will be accompanied by an Outline Construction Environmental Management Plan (CEMP). An Outline CEMP will be included as an appendix to the PEIR and ES and secured via a requirement in the DCO. The Outline CEMP will focus on commitments to best practice construction and environmental protection

techniques, establishing a foundation of site-specific measures compliant with environmental regulations to minimise environmental impacts to be included in the Outline CEMP submitted with the ES.

3.6.10 Environmental management processes will be outlined in the Outline CEMP; these include, but are not limited to:

- Use of land for temporary laydown areas, accommodation, etc;
- Construction traffic (including parking and access requirements) and changes to access and temporary road or footpath closure (if required);
- Control measures to protect and management retained planting, habitats land restoration and enhancement;
- Control measures for water management (surface water and ground water) to prevent pollution;
- Noise and vibration measures to control noise and vibration levels to protect wildlife and communities;
- Utilities diversion;
- Control measures to manage dust generation and emissions from construction activities;
- Soil handling removal, storage and waste generation Soil and excavated material management plan;
- Emergency response and contingency plans relating to spills or extreme weather conditions;
- Communication strategies to keep communities and stakeholders informed throughout the construction process; and
- Mechanisms for monitoring and reporting on the above.

3.6.11 The detailed CEMP will be developed by the designated Principal Contractor after the DCO has been granted, which will have to be substantially in accordance with the Outline CEMP as secured via the DCO. Approval for the detailed CEMP will be sought from the appropriate local planning authority before construction begins, as stipulated by the requirements of the DCO. This plan will specify the procedures that the Principal Contractor and its subcontractors must follow and oversee throughout the construction process. Contractors associated with the construction of the Proposed Development will be required to incorporate environmental control, health and safety regulations, and current legislative and best practice guidance.

- 3.6.12 The use of the CEMP is detailed within the Scoping Commitments Register. Where applicable the Scoping Commitments Register also includes any environmental aspect specific measures which the Applicant will implement as part of the CEMP to ensure no likely significant effects will occur.

## **Operation**

### ***Operation of the Proposed Development***

- 3.6.13 During the operational phase, the activities on Site would involve servicing, maintenance, and replacement (where necessary) of plant and equipment associated with the Proposed Development, including solar PV modules, inverters, transformers, Onsite Substation compound, and vegetation and biodiversity management. An Outline Operational Environmental Management Plan will be submitted as part of the DCO Application.
- 3.6.14 An Outline Landscape and Ecological Management Plan (LEMP) will be included with the ES and secured via requirement in the DCO. This document will set out how soft landscaping, biodiversity mitigation and enhancement measures would be managed throughout the operational phase of the Proposed Development.
- 3.6.15 There may be a level of HGV activity required to replace equipment on-site. The ES will include further details of the maintenance and replacement activities, and appropriate controls will be developed as part of the DCO Application.

### ***Operational Site Access***

- 3.6.16 During the operational phase, activity on-site will be minimal and would be restricted principally to vegetation management and monitoring, equipment maintenance and servicing, replacement of any components that fail, and monitoring to ensure the continued effective operation of the Proposed Development. It is anticipated that, as a reasonable worst-case, there will be up to 10 staff on-site daily during the operational phase, involving the presence of four-wheel drive vehicles, HGVs or transit vans for maintenance purposes.
- 3.6.17 An Outline Operational Environmental Management Plan (Outline OEMP) will accompany the DCO application, which will describe the framework of operational mitigation measures as identified in the ES

to be followed and carried forward to a detailed OEMP prior to operation. The OEMP will be secured via a requirement in the DCO.

## **Decommissioning**

### ***Decommissioning of the Proposed Development***

- 3.6.18 The design life of the Proposed Development is expected to be up to 40 years. When the operational phase ends, the Proposed Development will require decommissioning. All solar PV modules, mounting poles, on-site cabling, inverters and transformers would be removed from Site and recycled or disposed of in accordance with good practice and market conditions at that time. The future of the Onsite Substation and underground 132 kV cable would be agreed with the relevant Local Planning Authority (LPA) prior to commencement of decommissioning. A Decommissioning Environmental Management Plan (DEMP), to include timescales and transportation methods, would be agreed in advance with the relevant LPA and secured via a requirement in the DCO.
- 3.6.19 When the Proposed Development is decommissioned, the Site would be returned to its original use as far as possible and practical, with areas of established mitigation left in-situ where possible and in agreement with the landowners.
- 3.6.20 Decommissioning is expected to take up to a maximum of 24 months and could be undertaken in phases. The effects of decommissioning are usually similar to, or of a lesser magnitude than, construction effects and will be considered in the relevant sections of the ES. The specific method of decommissioning the Proposed Development at the end of its operational life is uncertain at present as the engineering approaches to decommissioning will evolve over the operational life of the Proposed Development. Assumptions will therefore be made where appropriate.

## 4. SITE SELECTION AND ALTERNATIVES

### 4.1 INTRODUCTION

- 4.1.1 Schedule 4(2) of the EIA Regulations requires “A *description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects*” to be presented in the ES.
- 4.1.2 The ES will include a description of the alternatives relevant to the Proposed Development that have been considered and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects. The alternatives analysis to be presented in the ES is likely to focus on different Site layouts, sizing, technologies and design parameters.
- 4.1.3 This chapter presents a summary of the process followed to date for the Proposed Development. The PEIR and ES will provide further detail on the selection processes including how the design and locations have evolved over time and any refinements that take place specifically as a result of the EIA process and in response to stakeholder feedback.

### 4.2 ALTERNATIVES CONSIDERED

- 4.2.1 The Applicant has undertaken a feasibility assessment which evaluates the risk associated with development on specific land parcels. Consequently, some land parcels have been deemed to be unsuitable for solar development and have either been excluded from the Site boundary or allocated for habitat enhancement and mitigation works. The assessment follows the principles of the design aims and will be appended to the ES as part of the Site optioneering study to assess the physical limitations of land parcels across the Site.
- 4.2.2 At a local level, the selection of each field leading to the Site Boundary has been guided by principles underpinned by national and local planning and environmental policy, as well as the mitigation hierarchy of avoidance in the first instance. The following principles are at the centre of the development process:

- Minimising landscape impact:
  - Siting away from landscape designations;
  - Avoiding areas with unfavourable topography to preserve landscape character;
  - Avoiding development on Grade 1 Best and Most Versatile (BMV) land and minimising the use of Grades 2 and 3a land. It is inevitable that parts of the development will be sited on BMV; however, an ALC survey will be undertaken to inform the design as it evolves;
  - Coherently selecting individual fields to contain the Site and prevent sprawl; and
  - Locating larger electrical infrastructure in well-screened, suitable locations.
- Heritage, Biodiversity, and Amenity Considerations;
  - Avoiding areas with designated heritage assets;
  - Not encroaching on national and international biodiversity and geodiversity sites;
  - Avoiding high-risk Flood Zones;
  - Minimising amenity loss by avoiding large villages and towns;
  - Avoiding National Trails;
  - Considering PRowS and enhancing them where possible; and
  - Selecting areas near appropriate transport routes.

4.2.3 A 'no development' alternative would not deliver the additional electricity generation capacity and other benefits associated with the Proposed Development which include, but are not limited to, a positive climate impact (through exceedance of net zero requirements) and landscape and habitat enhancement including a net BNG. The 'no-development' scenario is not considered a reasonable alternative and will not be discussed as a 'considered alternative' within the ES. This does not preclude the use of the 'no-development' also referred to as a 'do nothing' scenario in certain technical chapters of the ES where this is required to present future baseline conditions in relation to the impact assessment.

- 4.2.4 A full detailed appraisal of the options considered will be presented as part of the ES, discussing the rationale for the final Site layout and design selection, including an explanation of how environmental effects have been taken into account as well as explaining the flexibility sought within the consent in this regard. The reasonable alternatives assessment will focus on the site selection process, design layouts/opportunities within the Site (Solar PV Site and Cable Corridor), the sizing and scale of infrastructure, and alternative technologies.
- 4.2.5 Further refinement will be undertaken as the Proposed Development design progresses to determine the DCO application boundaries and layout for the Site submitted with the DCO application

## 5. CONSULTATION

### 5.1 CONTEXT

- 5.1.1 The Proposed Development has a wide range of stakeholders (including landowners, statutory consultees, local communities and specialist interest groups) with differing interests that will require varied levels of information. Specific communication activities need to be focussed to meet the needs of individuals and groups. This requires an understanding of the stakeholders and their interest in the Proposed Development.
- 5.1.2 Stakeholder engagement for the Proposed Development is based on the following principles:
- Early and ongoing engagement to inform and influence the Proposed Development's design process;
  - Seeking an appropriate level of feedback at each stage in the iterative design process and ensuring that comments received are taken into consideration;
  - Building of long-term relationships with key stakeholders throughout the different stages of the Proposed Development to help better understand their views;
  - Where possible and practicable ensuring concerns are addressed; and
  - Ensuring appropriate statutory consultation is undertaken in compliance with requirements of the Planning Act 2008 and associated guidance.

### 5.2 CONSULTATION APPROACH

- 5.2.1 Consultation during the EIA process is essential for developing a comprehensive and proportionate ES. The opinions of statutory and non-statutory consultees are crucial to ensure that the EIA focuses on specific issues where significant environmental effects are likely and where further investigation is necessary.
- 5.2.2 Early and continuous engagement with consultees is vital to shape the mitigation of potential significant effects, early engagement enables embedded and additional mitigation measures to be incorporated into the Proposed Development from the outset. Feedback from consultees will be actively sought and incorporated into the evolving design.

- 5.2.3 Before starting statutory consultation, the Applicant will develop a Statement of Community Consultation (SoCC), outlining the planned approach for consulting the local community. This will be done in collaboration with the local authorities as required by Section 47 of the Planning Act 2008.
- 5.2.4 A Consultation Report will be submitted in support of the DCO application. The report will document the entire consultation process, including the methods used, feedback received, and how that feedback has influenced the Proposed Development's design where possible. It also includes responses to comments gathered during both statutory and non-statutory consultations.

### **Non-Statutory Consultation**

- 5.2.5 In January 2025, the Applicant started the process of conducting targeted non-statutory engagement for the Proposed Development. The feedback and comments received from the Community Liaison Group (CLG) is actively helping to shape the evolving design of the Proposed Development prior to the statutory phase of consultation.
- 5.2.6 The Applicant has notified a variety of key stakeholders, including, any person or group likely to be directly impacted by the Site, parish councils and prescribed consultees.
- 5.2.7 At the time of writing, residences located nearby the proposed Cable Route Options have not been notified of the Proposed Development. The Applicant intends to notify these stakeholders once the Cable Corridor Options are refined ahead of Statutory Consultation.
- 5.2.8 The Applicant has also contacted nearby neighbours of the Proposed Development to inform them and provide a direct line of communication. Additionally, the Applicant has met in person with some of these neighbours.

### **Statutory Consultation**

- 5.2.9 A second round of consultation for the Proposed Development is planned for Summer 2025, being the statutory consultation pursuant to the Planning Act 2008 and EIA Regulations, including consultation on the PEIR. The approach to the statutory consultation will be informed by feedback from the first consultation, as well as feedback from the local authorities through the development of the SoCC.

- 5.2.10 As part of the EIA process, consultation will be conducted with a variety of statutory and non-statutory consultees. Consultation will also be undertaken with prescribed consultation bodies as well as affected landowners, in accordance with Sections 42 and 48 of the Planning Act 2008. The aims of statutory consultation are to:
- Present current plans, showing how early consultation feedback has been considered and incorporated into the Proposed Development design where feasible;
  - Take feedback to demonstrate how initial feedback has been addressed and how the design developed as a result, and identify opportunities for further design enhancements; and
  - Identify opportunities for additional design refinements before submitting the DCO application.
- 5.2.11 As part of the EIA process, consultation will be conducted with a variety of statutory and non-statutory consultees. At this stage, it is anticipated that statutory consultees will include, not limited to:
- Essex County Council;
  - Uttlesford and Braintree District Councils;
  - Natural England;
  - Parish Councils;
  - Natural England;
  - Environment Agency;
  - Historic England; and
  - National Highways.
- 5.2.12 The PEIR will include the preliminary findings of the environmental assessments conducted and outline the initial conclusions regarding the potential significant effects. It will also provide details about possible mitigation measures designed to minimise or prevent these effects. This information is intended to help respondents provide well-informed feedback during the consultation process.
- 5.2.13 The Applicant will continue ongoing consultation with UDC and BDC, stakeholders listed above, and other relevant consultees throughout the development of the Proposed Development and preparation of the ES. This will include adherence to consultation requirements outlined in the Planning Act 2008, as well as related regulations and guidance.

## 6. ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

### 6.1 SCOPING PROCESS

- 6.1.1 Scoping is a crucial process in establishing the scope of an ES and identifying the relevant issues for assessment. It serves as a preliminary step that contextualises the entire EIA process.
- 6.1.2 During scoping, key environmental issues are identified early on, allowing subsequent work to focus on those topics where significant effects may arise due to a development. The design process is iterative, informed by increasing knowledge gained throughout the EIA process. Inputs to the scoping process include:
- An initial project description, including key components and their likely maximum parameters;
  - Characteristics of the environment near the Site;
  - Identification of likely significant effects; and
  - Review of EIA Regulations and the Planning Inspectorate's Guidance Notes to identify relevant topics.
- 6.1.3 The scope of assessment can then be further refined through scoping workshops, engagement and consultation, and initial assessments by environmental assessment specialists.
- 6.1.4 This Scoping Report summarises the findings of the scoping process. It identifies the effects proposed for consideration within the ES. Each topic chapter within this Scoping Report outlines the proposed scope of assessment and identifies any topics suggested to be excluded from assessment due to the lack of potential significant effects.
- 6.1.5 As part of the scoping process, a Scoping Opinion is being sought from the Planning Inspectorate. This Opinion will inform the final scope of the ES. Throughout the EIA process, assessment work will continue and surveys will be completed. If new issues arise or it becomes evident that certain potential impacts are unlikely to result in significant effects, the assessment scope will be refined based on discussions with stakeholders.

### 6.2 PRELIMINARY ENVIRONMENTAL INFORMATION REPORT

- 6.2.1 Under Regulation 12(1)b of the EIA Regulations, the Applicant must outline their approach to publicising and consulting on preliminary environmental information related to the Proposed Development in

their SoCC. Regulation 12(2) defines preliminary environmental information as the information compiled by the Applicant which is reasonably required for consultation bodies to develop an informed view of the likely significant effects of the Proposed Development (including any associated components). In the specific case of the Proposed Development, the PEIR will be made public during the statutory consultation process, currently expected to take place during Summer 2025.

- 6.2.2 The PEIR will be published in the form of a draft ES. This approach aligns with Planning Inspectorate's guidance, which emphasises the importance of presenting comprehensive preliminary information to facilitate informed consultation and feedback. According to the Planning Inspectorate's Advice Note Seven and EIA Regulation 14(2), the PEIR should include sufficient detail to allow consultees to understand the likely significant environmental effects and the proposed mitigation measures. This ensures that the final ES is robust and addresses any concerns raised during the consultation process.

## 6.3 ENVIRONMENTAL STATEMENT

- 6.3.1 The ES will analyse the anticipated significant effects of the Proposed Development across relevant environmental topics. It achieves this by comparing the existing and future (as required) baseline conditions with the projected conditions during construction, operation, and decommissioning.
- 6.3.2 The assessment of potential changes focuses on their likely significance. This determination involves comparing potential effects, such as pollution or visual impact, to legal or industry standards (where applicable) and considering the environment's capacity to absorb or adapt to the identified effects. When specific quantified standards are lacking, effects are not inherently deemed significant. Instead, the significance of a change depends on its impact on environmental receptors and how sensitive the receptor is deemed to be. These receptors can include people, communities, built resources (like listed buildings), and natural resources (such as ecologically important sites and protected species).
- 6.3.3 The EIA process not only assesses the significance of potential impacts but also serves as a tool to enhance the design of the

Proposed Development. It determines the significance of impacts by evaluating their magnitude in relation to the sensitivity or value of the affected receptors, using industry-standard methodologies whenever available and applicable. The magnitude of an impact refers to the extent, duration, and intensity of the change caused by the Proposed Development, while the sensitivity or value of a receptor considers the importance, vulnerability, and resilience of the environmental component affected. By systematically comparing the scale of the impact with the importance or vulnerability of the receptors, the EIA process ensures a thorough and standardised assessment of environmental consequences. This approach facilitates informed decision-making and the development of effective mitigation strategies to minimise adverse effects and enhance positive outcomes, ultimately leading to improved design of the Proposed Development.

- 6.3.4 The Planning Inspectorate provides detailed guidance on the EIA process, including the assessment of significance. According to the Planning Inspectorate's Advice Note Seven, the significance of an impact is typically determined by assessing the magnitude of the impact against the sensitivity of the receptor, using established methodologies where available. This guidance helps ensure that the EIA process is consistent, transparent, and robust, supporting the preparation of comprehensive ESs that inform decision-makers and stakeholders.

## 6.4 BASELINE DESCRIPTION

- 6.4.1 The term 'baseline conditions' refers to the existing and anticipated future environmental state in the absence of the Proposed Development. Each topic chapter of the ES will include a description of the current baseline conditions collected through field and desktop research. These conditions serve as the foundation for the assessment, allowing for the identification of likely significant effects by comparing them with the baseline state.
- 6.4.2 The baseline also extends into the future (the future baseline), although predictions of this can involve potentially large uncertainties and assumptions. As a result, in most cases the future baseline is assumed to remain unchanged throughout the operation of the

Proposed Development. Where this is not the case, this will be stated within the relevant topic chapter of the ES.

## 6.5 EFFECTS SIGNIFICANCE CRITERIA

- 6.5.1 The evaluation of the significance of an effect is important; it is the significance that determines the resources that should be deployed in avoiding or mitigating a significant adverse effect, or conversely, the actual value of a beneficial effect. Where it has not been possible to quantify effects, qualitative assessments will be undertaken, based on available knowledge and professional judgment. Where uncertainty exists, this will be noted in the relevant topic chapter.
- 6.5.2 The assessment of residual effects takes into account the effects that are remaining once all mitigation measures have been taken into consideration (residual effects). The measures which will be taken into consideration in the significance of the effects will be guided by criteria specific to each environmental topic. Criteria to gauge the significance of effects for each environmental topic are established within each topic section, taking into careful consideration the aspects listed below:
- The scope and degree of the impact, which is characterised as high, medium, low, or very low;
  - The duration of the effect, including whether the effects are temporary, reversible, or permanent;
  - The nature of the effect, determining if it is direct or indirect, beneficial or adverse;
  - The occurrence of the effect, whether it is isolated, accumulative, or interactive with other effects;
  - Performance against any relevant environmental quality standards;
  - The receptor's sensitivity, categorised as high, medium, low, or negligible; and
  - The alignment with environmental policy objectives.
- 6.5.3 The significance of residual effects will be evaluated with reference to available definitive standards, accepted criteria and legislation. For issues where definitive quality standards do not exist, significance will be based on:

- Local, district, regional or national scale or value of the resource affected;
- Number of receptors affected;
- Sensitivity of these receptors; and
- Duration of the effect.

6.5.4 To maintain consistency throughout the EIA and to ensure effects are comparable, the following terminology and definitions will be used in the ES to define residual effects:

- Adverse – detrimental or negative effects to an environmental/socio-economic resource or receptor;
- No change - no loss or alteration of characteristics, features or elements; no observable impact in either direction; or
- Beneficial – advantageous or positive effect to an environmental/socio-economic resource or receptor.

6.5.5 Where adverse or beneficial effects are identified, the following scale will be used:

- Negligible - no detectable or material change to a location, environment or species;
- Minor – a detectable but non-material change to a location, environment or species;
- Moderate – a material, but non-fundamental change to a location, environment or species; or
- Major – a fundamental change to a location, environment or species.

6.5.6 Each technical topic outlines the criteria, and rationales for measuring the various types of effects. Where possible, this will be based upon quantitative and accepted criteria, together with the use of expert interpretation to establish the extent to which the effect is environmentally significant. **Table 6.1** presents a generic matrix for determining the significance of likely effects. Effects that would be 'significant' in terms of the EIA Regulations are shaded.

**Table 6.1 Generic matrix for determining the significance of likely effects.**

	<b>Magnitude of Change</b>			
<b>Sensitivity of receptor</b>	<b>Negligible</b>	<b>Low</b>	<b>Medium</b>	<b>High</b>
<b>Negligible</b>	Negligible	Negligible	Negligible	Negligible
<b>Low</b>	Negligible	Minor	Minor	Moderate
<b>Medium</b>	Negligible	Minor	Moderate	Major
<b>High</b>	Negligible	Moderate	Major	Major

- 6.5.7 Following the classification of an effect, clear statements will be made within the environmental topic sections as to whether that effect is significant or not significant. As a general rule, major and moderate effects are considered to be significant, while minor and negligible effects are considered to be not significant. However, professional judgment will be applied, taking into account whether the effect is permanent or temporary, its duration/frequency, whether it is reversible, and/or its likelihood of occurrence.
- 6.5.8 Where mitigation measures are identified to eliminate, mitigate or reduce adverse impacts, these have either been incorporated into the design of the Proposed Development; translated into construction commitments; or operational standards/procedures. The PEIR and the ES will highlight 'residual effects', which remain following the implementation of suitable mitigation measures, and classify these in accordance with the effect classification terminology given above.
- 6.5.9 Some environmental topic disciplines may utilise different criteria when undertaking assessments due to differences in industry-accepted guidelines and specifications. Where this is the case, the technical topic will discuss how the assessment methodology or classification of effects differs from the general EIA methodology as described in this section and provide justification.

## 6.6 SCOPE OF ASSESSMENT

- 6.6.1 The scope of the assessment falls under two broad categories:
- Spatial scope; and
  - Temporal scope.

## Spatial Scope

- 6.6.2 In general terms, the spatial, or geographical scope of the assessment will take into account the following factors:
- The physical extent of the proposed works, as defined by the Proposed Development design;
  - The nature of the baseline environment and the manner in which particular impacts are likely to be propagated from their source; and
  - The pattern of governmental administrative boundaries, which provide the planning and policy context for the Proposed Development.
- 6.6.3 For example, any potential effects on buried archaeology would tend to be confined to those areas physically disturbed by the works, whilst the effects of noise or visual intrusion could potentially be experienced at some distance from the works.
- 6.6.4 Appropriate Study Areas will be considered for each environmental topic by the specialists undertaking that assessment, and in agreement with the relevant consultees.

## The Temporal Scope

- 6.6.5 The temporal scope of the assessment generally refers to the time periods over which impacts may be experienced. This will be established for each environmental discipline, where appropriate through discussion with the relevant statutory consultees.
- 6.6.6 Terms used to qualify the duration of an impact or effects will tend to be specific to the topic being considered.

## Construction

- 6.6.7 For assessment throughout the EIA, construction effects are defined as those of which the source begins and ends during the construction phase, and do not extend beyond the completion of the construction phase.
- 6.6.8 Sources of effects during construction are likely to include, but not be limited to:
- Construction traffic;
  - Construction vehicles causing disruption to road networks (depositing mud and risk of spillages);

- Noise and vibration caused by construction activities;
- Construction dust;
- Site runoff;
- Removal of vegetation;
- Habitat disruption;
- Waste generation;
- Disturbance of soil; and
- Landscape and visual impacts of construction machinery.

6.6.9 Different construction activities vary in duration; as such, construction activities associated with electrical infrastructure will likely have a longer duration and will span the full construction period, whereas works associated with potential land preparation would be shorter in duration and be part of more discrete construction phases.

### **Operation**

6.6.10 For the EIA, operational effects are those impacts that occur during the operational period. They may emerge during the construction phase. These effects can be permanent, last significantly beyond construction, or represent a prolonged cumulative impact of construction or decommissioning activities. Effects of the Proposed Development during operation are likely to include, but not be limited to:

- Landscape and visual effects including glint and glare;
- Noise and vibration effects;
- Effects associated with maintenance activities;
- Effects on drainage; and
- Effects on biodiversity.

6.6.11 Timescales associated with these enduring effects are as follows:

- Short term – endures for up to 12 months after construction or decommissioning;
- Medium term – endures for 1-5 years;
- Long term – endures for more than 5 years;
- Reversible long-term effects – long-term effects, which endure throughout the lifetime of the Proposed Development, but which cease once the Site has been decommissioned; and

- Permanent effects – effects which will not be reversed following decommissioning (e.g. biodiversity net gain).

### ***Decommissioning***

6.6.12 For the purposes of the EIA, decommissioning effects are identified as those impacts that originate and conclude during the decommissioning stage, with no lasting effects beyond the completion of this phase. Effects of the Proposed Development during decommissioning are likely to include, but not be limited to:

- Traffic, noise and vibration from decommissioning activities;
- Dust generation;
- Site runoff;
- Vehicular disruption to road networks (depositing mud and risk of spillages); and
- Landscape and visual impacts of machinery and equipment.

6.6.13 As with construction phase effects, some aspects of decommissioning will endure for longer than others.

## **6.7 APPROACH TO MITIGATION AND ENVIRONMENTAL MANAGEMENT**

6.7.1 The Proposed Development adopts overarching design principles, which not only aim to mitigate negative environmental impacts but also enhance biodiversity and ecosystems. By integrating biodiversity benefits into the design, engaging with stakeholders, and aligning with global sustainability goals, the Proposed Development aims to create net positive outcomes. This approach ensures support for local biodiversity, provision of social and economic benefits, and a positive contribution to the environment. The EIA will be crucial in identifying significant impacts and determining appropriate mitigation measures. These measures will incorporate the principles of positive design nature, ensuring the Proposed Development mitigates negative effects while enhancing biodiversity and supporting sustainable development.

6.7.2 Mitigation measures will be proposed to prevent, reduce, or address any potentially significant adverse environmental effects identified, beyond those already considered as standard good practice (e.g., the CEMP). Each technical topic of this Scoping Report investigates the measures recommended to mitigate likely significant effects at this stage of the Proposed Development's progression. For

- 6.7.3 consistency throughout the EIA, this strategy of avoidance, prevention, reduction and offsetting is a hierarchical one which seeks:
- First to avoid likely effects;
  - Then to reduce those which remain; and
  - Last, where no other measures are possible, to propose compensatory measures to offset the predicted effect.
- 6.7.4 Mitigation will be secured through DCO requirements or other means, and the mitigation and its means of being secured will be documented in a Commitments Register that will be submitted as part of the DCO application. The Advice Note on the Commitments Register<sup>13</sup> defines commitments as
- "both embedded measures (measures integral to the design of the project) and additional measures (measures which are not integral to the project), and monitoring proposed by an applicant to either avoid or minimise adverse effects or to provide beneficial outcomes in order to secure good design."*
- 6.7.5 The first iteration of the Proposed Development's Commitments Register is included as **Appendix C** of this Scoping Report.
- 6.7.6 Where mitigation measures are identified to eliminate, mitigate or reduce adverse impacts, these have either been incorporated into the design of the Proposed Development, or translated into construction commitments or operational or managerial standards/procedures. The ES will highlight 'residual' effects, which remain following the implementation of suitable mitigation measures, and classify these in accordance with the effect classification terminology given above.
- 6.7.7 The outline CEMP introduces documents, and the management plans that will be developed post-consent into detailed documents, plans and procedures (in the form of a detailed Construction Environmental Management Plan) as the Proposed Development progresses through later design processes. In addition to the specific mitigation measures identified for each of the environmental topics, the Proposed development's CEMP will conform to general environmental management practices and health and safety considerations.
- 6.7.8 Subsidiary, topic-specific management plans will also be developed by the Principal Contractor alongside the detailed CEMP to address

mitigation requirements and measures under specific environmental topics and/or conditions of granted consents. These plans may include (but not be limited to) those listed in **Table 6.2**.

**Table 6.2 Anticipated Management Plans**

Management Plan	Acronym	Description
Operation Environmental Management Plan.	OEMP	Provides guidance for operational activities to mitigate environmental impacts.
Decommissioning Environmental Management Plan.	DEMP	Ensures environmental management during decommissioning phase.
Landscape and Ecological Management Plan.	LEMP	Details long-term and immediate commitments to the management of habitats and ecological enhancements.
Habitat Monitoring and Management Plan.	HMMP	Outlines habitat management and monitoring for biodiversity net gain, including provisions for off-site gains (if necessary).
Construction Traffic Management Plan.	CTMP	Manages traffic flow and safety during construction, outlines the mitigation for environmental impacts to sensitive receptors, considers stakeholder requirements, and ensures compliance with legal and local regulations.
Construction Work Travel Plan.	CWTP	Outlines travel arrangements for construction workers, ensuring that appropriate measures are implemented, such as promoting sustainable travel behaviour and minimising the effect of peak construction traffic flows.
Public Rights of Way Management Plan.	PRoWMP	Identifies where Public Rights of Way would be crossed and outlines how they would be managed to ensure open sections remain safe to use and that disruption to users is minimised.
Dust Management Plan.	DMP	Controls dust emissions from construction activities by ensuring regulatory compliance, and minimising any potential environmental and human

Management Plan	Acronym	Description
		health impacts from the Site's dust emissions.
Surface Water Drainage Strategy.	SWDS	Manages surface water drainage to prevent flooding and contamination.
Construction Waste Management Plan.	CWMP	Manages waste generated during construction activities.
Site Waste Management Plan.	SWMP	Manages all waste generated and held on-site and ensures waste is disposed safely, efficiently and in accordance with the law.
Soil Management Plan.	SMP	Guides the sustainable management of soil resourcing soil resources and prevents degradation.

6.7.9 Further breakdown of the anticipated management plans and how they would be implemented is available throughout **Chapters 7-18**.

## 6.8 THE ROCHDALE ENVELOPE

- 6.8.1 Large scale developments often undergo design changes during the planning phase. Consequently, development design must remain adaptable to economic and technological shifts. The Planning Inspectorate acknowledges the importance of design evolution and flexibility, especially considering how pre-application and EIA consultations can positively influence the Proposed Development's design<sup>14</sup>. Despite the need for responsiveness, Regulation 14(2)(a)<sup>15</sup> of the EIA Regulations 2017 mandates that the ES describes the Proposed Development, including Site details, design, size, and other relevant features. This information allows for an informed assessment of the Proposed Development's environmental impact, benefiting decision-makers, statutory consultees, and the public.
- 6.8.2 An EIA therefore typically strives to define the Proposed Development with sufficient detail to enable the accurate prediction of likely significant environmental effects, whilst defining 'envelopes' of design flexibility or specification ranges within which the Applicant can realistically deliver the Proposed Development. The Planning Inspectorate's Advice Note 9: 'Rochdale Envelope'<sup>16</sup> provides

guidance regarding the degree of flexibility that may be considered appropriate within an application for development consent under the Planning Act 2008. The advice note acknowledges that there may be aspects of the Proposed Development design that are not yet fixed, and therefore, it may be necessary for the EIA to assess likely worst-case variations to ensure that all foreseeable significant environmental effects of the Proposed Development will be assessed.

- 6.8.3 In order to maintain flexibility in the design, it is the Applicant's intention to use the 'Rochdale Envelope' approach within maximum parameters. With regard to this Scoping Report, the EIA is being scoped at a time when the design of the Proposed Development is still evolving, which means a level of uncertainty is inherent. The Scoping Report makes every effort to be transparent about this and to be clear about the worst-case scenario for each impact such that the approach taken in every case is precautionary whilst proportionate. This has included the development of a suite of Proposed Development description assumptions and 'worst case' scenarios, which the Scoping Report sets out, to provide as much detail as possible on the nature of any potential impacts and/or the responses of receptors and to be very clear where any uncertainty lies. It goes on to specify what the EIA team intends to do in the later PEIR and ES submitted as part of the DCO Application to achieve a reasonable level of confidence/certainty in predicting likely significant effects.

## 6.9 CUMULATIVE EFFECTS

- 6.9.1 Cumulative effects assessment is crucial for solar NSIPs as it ensures a comprehensive evaluation of the combined impacts of multiple developments on the environment and communities. This holistic approach helps identify potential cumulative effects that might not be apparent when assessing developments individually, such as the combined impact on local ecosystems, water resources, and community health.
- 6.9.2 **Chapter 18** of this Scoping Report establishes the cumulative long list (stage 1) and short list (stage 2) in accordance with the NSIP Advice on Cumulative Effects Assessment<sup>17</sup> introduced in September 2024.

## 6.10 ENVIRONMENTAL TOPICS

- 6.10.1 The subsequent sections identify the environmental topics encompassed within the Scoping Report. They also outline the anticipated likely significant effects and the proposed methodology for conducting topic assessments. In some instances, the scope of the assessment is based on environmental information collected (including new survey data, desk study data, site walkovers and previously conducted survey work), which is being used to inform the emerging design of the Proposed Development.
- 6.10.2 The following topics are those for which standalone chapters are not anticipated to be required in the ES. For clarity, these topics are not scoped out of the EIA. They are scoped in, but they will form an 'Other Environmental Topics' chapter or will be covered within other chapters of the ES. These topics comprise:
- Waste;
  - Glint and Glare;
  - Telecommunications and Utilities;
  - Major Accidents and Disasters;
  - Human health;
  - Population; and
  - Electro Magnetic Field.
- 6.10.3 The environmental topics identified within this Scoping Report include:
- Air Quality;
  - Biodiversity and Nature Conservation;
  - Climate Change and Greenhouse Gas Assessment;
  - Cultural heritage and Archaeology;
  - Ground Conditions and Land Quality;
  - Landscape and Visual;
  - Noise and Vibration;
  - Socio-Economics and land Use;
  - Traffic and Transport;
  - Water Resources and Flood Risk; and
  - Other Environmental Topics.

## 7. AIR QUALITY

### 7.1 INTRODUCTION

- 7.1.1 This chapter outlines the scope of the air quality assessment for the Proposed Development. It identifies the baseline conditions, assessment methodology, potential effects from construction, operation (including maintenance) and decommissioning activities, and potential mitigation measures.
- 7.1.2 It will also outline the proposed approach to the technical scope of this chapter in the EIA and determine the specific elements that are scoped in and out of each assessment, aligning with the requirements of the EIA regulations.
- 7.1.3 The potential effects of the Proposed Development have been identified through a technical review of the current design, construction, operational and decommissioning aspects of the Proposed Development and how these will interact with ambient air quality.
- 7.1.4 This chapter should be read in conjunction with **Chapter 15** for further information on traffic numbers and traffic routeing.

### 7.2 TOPIC-SPECIFIC LEGISLATION, POLICY AND GUIDANCE

- 7.2.1 The scope of the Air Quality assessment section of the EIA has been developed in line with the following key legislation, policy and associated guidance:

#### Legislation

##### ***The Air Quality Standards Regulations 2010 (Statutory Instrument 2008/301 and Air Quality Regulations 2015):***

- 7.2.2 The Air Quality Standards Regulations 2010, implemented in the UK, were designed to comply with European Union directives (EU Directive 2008/50/EC) aimed at improving air quality across Europe. These regulations set legally binding limits for various pollutants, such as nitrogen dioxide, particulate matter, and sulphur dioxide, in ambient air. These regulations prescribe the 'relevant period' (referred to in Part IV of the Environment Act 1995) that local authorities must consider in their review of the future quality of air within their jurisdiction. The regulations also set out the air quality objectives to be achieved by the end of the 'relevant period'.

## Policy

### **National Policy Statements**

- 7.2.3 DESNZ has published National Policy Statements (NPS) related to the energy sector including the Overarching National Policy Statement for Energy (EN-1)<sup>18</sup> and the National Policy Statement for Renewable Energy Infrastructure (EN-3)<sup>19</sup>. These NPSs outline the aspects of an air quality assessment required for large energy schemes including for construction, operation, maintenance and decommissioning stages. These NPSs were used to inform the air quality impact assessment methodology for the Proposed Development.

### **National Planning Policy Framework 2024<sup>20</sup>**

- 7.2.4 Chapter 15 paragraph 187 (e) of the NPPF (2024) notes that planning decisions should be made with regard to:
- 7.2.5 *"preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans ..."*
- 7.2.6 In dealing specifically with air quality, the NPPF (2024) at paragraph 199 states:
- 7.2.7 *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*

## ***Air Quality Strategy for England, Scotland, Wales and Northern Ireland***

7.2.8 The Government's policy on air quality within the UK is set out in the Air Quality Strategy for England, Scotland, Wales and Northern Ireland published in July 2007 ('the Strategy'), pursuant to the requirements of Part IV of the Environment Act 1995. The Strategy sets out a framework for reducing hazards to health from air pollution and ensuring that international commitments are met in the UK. The Strategy is designed to be an evolving process that is monitored and regularly reviewed. The Strategy sets standards and objectives for ten main air pollutants to protect health, vegetation and ecosystems.

### ***Local Air Quality Management (LAQM)***

- 7.2.9 Part IV of the Environment Act 1995 also requires local authorities to periodically 'Review and Assess' the quality of air within their administrative area. The reviews have to consider the present and future air quality and whether any air quality objectives prescribed in regulations are being achieved or are likely to be achieved in the future.
- 7.2.10 Where any of the prescribed air quality objectives are not likely to be achieved the authority concerned must designate that area an Air Quality Management Area (AQMA).
- 7.2.11 For each AQMA, the local authority has a duty to draw up an Air Quality Action Plan setting out the measures it intends to introduce to deliver improvements in local air quality in pursuit of the air quality objectives. Local authorities are not statutorily obliged to meet the objectives; however, they must show that they are working towards them.
- 7.2.12 The Department of Environment, Food and Rural Affairs (DEFRA) has published technical guidance for use by local authorities in their Review and Assessment work. This guidance (known as LAQM TG (22)<sup>21</sup>) was used where appropriate in this assessment.

### **Guidance**

#### ***Institute of Air Quality Management (IAQM) Guidance on the assessment of dust from demolition and construction, Version 2.2<sup>22</sup>.***

- 7.2.13 This document outlines the procedures for assessing and mitigating dust impacts from demolition and construction activities. It includes

steps for screening the need for detailed assessments, evaluating the risk of dust impacts, and implementing site-specific mitigation measures.

### **IAQM, Land-Use Planning and Development Control: Planning for Air Quality<sup>23</sup>.**

7.2.14 This guidance, developed in collaboration with Environmental Protection UK, offers a framework for considering air quality within land-use planning and development control processes. It covers the role of the planning regime, the links between air quality and health, and the procedures for undertaking air quality assessments.

7.2.15 The Air Quality Standards of relevance for this assessment are set out in the following **Table 7.1**.

**Table 7.1 UK Air Quality Standards**

Applicability	Pollutant	Averaging Period	Assessment Criterion ( $\mu\text{g}/\text{m}^3$ )	Percentile
Sensitive Human Receptor	PM <sub>10</sub>	Annual Mean	40	n/a
		24 hour, <36 exceedances yearly	50	90.14 <sup>th</sup>
	PM <sub>2.5</sub>	Annual Mean	20	n/a
	NO <sub>2</sub>	Annual, mean	40	n/a
		1-hour, <18 exceedances yearly	200	99.79 <sup>th</sup>
Ecological Receptor	Nitrogen oxide (NO <sub>x</sub> )	Annual	30	n/a
		Daily (24hr mean)	75/200*	100 <sup>th</sup>

n/a = not applicable

\*200  $\mu\text{g}/\text{m}^3$  where ozone is below the AOT40<sup>24</sup> critical level and sulphur dioxide is below the lower critical level to 10  $\mu\text{g}/\text{m}^3$

The assessment criteria to determine impacts from construction activities are described in the IAQM guidance.

### 7.3 PRELIMINARY BASELINE CONDITIONS

#### Data sources

7.3.2 The ES will present detailed information on the existing air quality in the area of the Proposed Development following the review and analysis of the following data sources:

- DEFRA online interactive monitoring networks map<sup>25</sup>;
- DEFRA's online UK Ambient Air Quality Interactive Map<sup>26</sup>;
- DEFRA's online Air Quality Management Area Interactive Map<sup>27</sup>;
- Local authority monitoring data<sup>28,29</sup>; and
- Air Pollution Information System (APIS)<sup>30</sup>.

#### Proposed Study Area

##### *Air Quality Assessment*

7.3.3 The Study Area for the air quality assessment will be based on activities within 250 m of the Site Boundary. The Air Quality Study Area is Illustrated on **Figure 7.1**. All sections of the Proposed Development (the Site and Cable Corridor Options) will be considered in the assessment and will utilise the same Study Area and methodologies.

##### *Construction Dust Assessment*

7.3.4 For the construction dust assessment, the following distances (as specified by the IAQM guidance<sup>31</sup>) will be analysed:

7.3.5 A 'human receptor' within:

- 250 m of the Site Boundary; or
- 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Site entrance(s).

7.3.6 An 'ecological receptor' within:

- 50 m of the Site Boundary; and/or
- 50 m of the route(s) used by construction vehicles on the public highway, up to 250 m from the Site entrance.

## **Key Sensitivities**

- 7.3.7 The Proposed Development is located in a rural area. Key sensitivities on air quality in the construction and decommissioning phases from the Proposed Development would likely be:
- Potential dust nuisance for residential areas within 250 m from construction activities and 50 m from construction access routes;
  - Potential PM<sub>10</sub>/PM<sub>2.5</sub> health impacts for sensitive receptors (schools, hospitals, nurseries, care homes, residential areas) within 250 m from construction activities and 50 m from construction/access routes; and
  - Potential oxides of nitrogen (NO<sub>x</sub>) and by association nitrogen dioxide (NO<sub>2</sub>) impacts associated with construction traffic within 200 m of roads used by construction traffic.
- 7.3.8 Impacts from the decommissioning phase will be considered to be the same as for the construction phase.
- 7.3.9 The sensitivity of human receptors within the radius of potential impacts from dust raising activities is to be considered high for all types of receptors (residential areas, schools, hospitals etc.) within the framework of the dust impact assessment as per IAQM construction dust guidance<sup>32</sup>.
- 7.3.10 For other types of impact, residential areas are considered to be of medium sensitivity. High sensitivity applies to hospitals and schools.

## **Operational Phase**

- 7.3.11 There are anticipated to be no combustion sources directly from the Proposed Development during operation as solar developments do not burn fuel or create emissions by their nature. In addition, operational traffic numbers are anticipated to be very low as the development will have very few full-time employees and vehicle journeys to the Site will likely mainly relate to ad-hoc maintenance works. As such daily vehicle movements will be very low and there would no key sensitivities for the operational phase; as such, all impacts can be scoped out.

## **Preliminary Baseline Conditions**

- 7.3.12 The Proposed Development is located in a predominantly rural environment. There are no declared AQMAs in either the Uttlesford

Council or Braintree Council area and as such no AQMAs in the immediate vicinity of the Site. The nearest AQMAs to the Site are the Bishops Stortford AQMA (located approximately 19 km to the west of the Site in Bishops Stortford town centre) and the Sawbridgeworth AQMA (located approximately 20.5 km to the southwest of the Site), both located in East Hertfordshire District Council. It is unlikely that traffic accessing the Site will have to travel through these AQMAs and due to their distance from the Site they will not be considered in the assessment.

7.3.13 Preliminary analysis of the UK DEFRA 2025 background maps (based on 2021)<sup>33</sup> for the Site and Cable Corridor Options (taken as an average of various points due to the size of the DCO Limits) shows the following results:

- Annual mean PM<sub>10</sub> level 12.9 µg/m<sup>3</sup>;
- Annual mean NO<sub>x</sub> level 8.05 µg/m<sup>3</sup>;
- Annual mean NO<sub>2</sub> level 6.36 µg/m<sup>3</sup>; and
- Annual mean PM<sub>2.5</sub> level 6.32 µg/m<sup>3</sup>.

7.3.14 The nearest NO<sub>2</sub> local monitoring occurs in the town of Great Dunmow which is, at the closest point, approximately 6.2 km to the west of the Site, and the next nearest is on Stortford Road, approximately 8.7 km to the west of the Site<sup>34</sup>:

- UT053 Dunmow High Stile (roadside): 11.8 µg/m<sup>3</sup> annual mean in 2023; and
- UT017 Stortford Rd. Lt Canfield (roadside): 10.2 µg/m<sup>3</sup> annual mean in 2023.

7.3.15 For PM<sub>10</sub> and PM<sub>2.5</sub> there is one monitoring site located in Saffron Walden, approximately 22.1 km to the north of the Site:

- UTT3 London Road, Saffron Walden (roadside): PM<sub>10</sub>: 28.7 µg/m<sup>3</sup> and PM<sub>2.5</sub>: 21 µg/m<sup>3</sup> annual mean in 2023.

## 7.4 TECHNICAL SCOPE AND APPROACH TO EIA

### Level of assessment

7.4.2 The level of assessment has been determined using the principles of the guidance and criteria set out in the IAQM guidance. The air quality assessment will consider the construction and decommissioning phases of the Proposed Development. Air quality

impacts during operation are proposed to be scoped out, as set out in Key Sensitivities section above. Significant effects are not expected to be experienced in any phase of the development, noting that dust impacts can be mitigated to be negligible.

### **Baseline Survey Methodology**

7.4.3 Baseline air quality data (PM<sub>10</sub> and PM<sub>2.5</sub>) will be sourced from national or local monitoring networks, modelling undertaken by local authorities where available and from national modelling outputs (DEFRA background mapping, Air Pollution Information System (APIS)). No baseline surveys will be undertaken.

### **Construction/Decommissioning Phases**

#### ***Construction /Decommissioning Dust Assessment***

- 7.4.4 Impacts from construction/decommissioning activities will be assessed semi-quantitatively using the methodology described in the IAQM guidance<sup>35</sup>. The guidance will also be used to direct the Proposed Development towards the appropriate level of mitigation to control emissions and impacts.
- 7.4.5 It is noted that temporary diesel generators will be used on site during the construction phase; however, due to the small number and likely short running duration, these have not been considered in the assessment.

#### ***Construction Traffic Screening***

- 7.4.6 The significance of the expected impact of traffic emissions depends on the areas affected by increased traffic resulting from the Proposed Development. A staged screening process will be used to determine whether there are any roads where expected construction traffic flows could potentially result in a significant impact on air quality or require a detailed modelling assessment based on expected traffic routing. The screening is based on the screening criteria set out in the IAQM planning guidance<sup>36</sup>. The criteria are as follows:
- Outside an AQMA: a change in Heavy Goods Vehicles >100 HGVs/Day;
  - Outside an AQMA: a change in Light Goods Vehicles >500 LGVs/Day;

- Inside/adjacent to an AQMA: a change in Heavy Goods Vehicles >25 HGVs/day; and/or
- Inside/adjacent to an AQMA: a change in Light Goods Vehicles >100 LGVs/day.

7.4.7 Where those criteria are exceeded, a detailed modelling assessment of air quality impacts would be necessary. Due to the nearest AQMAs being over 19 km away, it is anticipated that construction and decommissioning traffic impacts on air quality will be screened out of the assessment.

### **Operational Phase**

7.4.8 The Operational Phase is proposed to be scoped out as discussed in Section 7.3.11.

## **POTENTIAL SIGNIFICANT EFFECTS AND MITIGATION**

### **Construction/Decommissioning Dust**

7.5.2 Construction/decommissioning of the Proposed Development has the potential to generate dust and PM<sub>10</sub>/PM<sub>2.5</sub>.

7.5.3 These emissions have the potential to adversely impact on amenity due to dust deposition and health due to inhalation of PM<sub>10</sub>.

### **Construction/Decommissioning Traffic**

7.5.4 Construction/decommissioning related traffic will be associated with emissions of exhaust gases which may affect human and ecological receptors. Impacts are anticipated to be not significant. The maximum increase of HGV and LGV movements over any one route are expected to be less than the screening criteria outlined above (taken from IAQM Guidance<sup>37</sup>).

### **Operation**

7.5.5 As there are no potentially significant combustion sources onsite during the operational phase, there is not anticipated to be any generation of NO<sub>2</sub> emissions as a result of on-site activities. NO<sub>2</sub> emissions from operational traffic is expected to be sufficiently small as not to be a material issue. The impacts from operational phase are proposed to be scoped out.

## Mitigation

- 7.5.6 As part of the Proposed Development design process, it is expected and considered best practice to reduce the potential for impacts due to emissions of dust from construction activities in line with the IAQM Guidance document<sup>38</sup>. Adhering to this guidance in general makes it possible to render these impacts negligible, or at worst minor. The relevant mitigation for the Proposed Development will be selected using IAQM guidance based on the construction footprint.
- 7.5.7 Site traffic (for both construction and decommissioning phases) will be compared against the IAQM screening criteria for road traffic<sup>39</sup>. The traffic flows are anticipated to be sufficiently small and are likely to be screened out if traffic numbers are below the criteria.

## 7.6 PROPOSED SCOPE OF THE EIA

- 7.6.1 On the basis of the sensitivities described above, the potential effects proposed to be scoped into or out of the EIA for this topic are presented in **Tables 7.2** and **7.3**.

**Table 7.2 Elements of the Air Quality Assessment Proposed to be Scoped In to the EIA**

Potential Effect/ Topic	Proposal for Assessment Within EIA	Rationale
<b>Construction Phase</b>		
Construction Dust	Scoped In	Construction works associated with dust raising activities (earthworks, traffic on unpaved areas, construction works). This may have an effect on human and ecological receptors sensitive to dust and PM <sub>10</sub> .
Construction Traffic	Scoped In (for screening assessment)	Construction related traffic will be associated with emissions of dust and exhaust gases which may affect human and ecological receptors. This will be assessed against IAQM screening thresholds.
<b>Decommissioning Phase</b>		

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
Decommissioning Dust	Scoped In	Decommissioning activities will generally be the reverse of the construction sequence, involving similar types and numbers of vehicles and equipment.

**Table 7.3 Elements of the Air Quality Assessment Proposed to be Scoped Out of the EIA**

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
<b>Operational Phase</b>		
Operation of the Proposed Development	Scoped Out	Relevant emissions sources from the development (such as maintenance activity) are likely to be so small as to be negligible.
Operational Traffic	Scoped Out	Traffic related to the operation of the Proposed Development is anticipated to be below the IAQM screening thresholds for the Proposed Development as operational traffic to the site is expected to relate to ad-hoc maintenance works and few full-time employees onsite.

## 7.7 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTIES

7.7.1 Although it is unlikely that the overall predicted impacts of the Proposed Development on air quality will diverge from the assessment presented, potentially uncertainties are as follows:

- It is anticipated that construction traffic will screen out using the IAQM criteria outlined above. However, in the unlikely scenario where these are exceeded, a full assessment may be required with additional scope. This would potentially include air quality traffic

emissions modelling and inputs from the traffic and transport specialists.

## 8. BIODIVERSITY AND NATURE CONSERVATION

### 8.1 INTRODUCTION

- 8.1.1 This chapter outlines the scope of the biodiversity and nature conservation assessment for the Proposed Development. It details the baseline conditions, potential effects from construction, operation (including maintenance), and decommissioning activities, assessment methodology, and potential mitigation measures.
- 8.1.2 It will also outline the proposed approach to the technical scope of this chapter in the EIA and determine the specific elements that are scoped in and out of each assessment, aligning with the requirements of the EIA regulations.
- 8.1.3 The potential effects of the Proposed Development have been identified through a technical review of the current design, construction, operational, and decommissioning aspects of the Proposed Development and how these may interact with sensitive ecological receptors.

### 8.2 TOPIC-SPECIFIC LEGISLATION, POLICY AND GUIDANCE

- 8.2.1 The scope of the biodiversity and nature conservation assessment section of the EIA has been developed in line with the following key legislation, policy and associated guidance:

#### Legislation

- Directive 2009/147/EC on the Conservation of Wild Birds (Birds Directive)<sup>40</sup>;
- Directive 92/43/EEC on Conservation of Natural Habitats and of Wild Fauna and Flora (as amended) (Habitats Directive)<sup>41</sup>;
- The Hedgerow Regulations 1997<sup>42</sup>;
- The Protection of Badgers Act 1992<sup>43</sup>;
- The Environment Act 2021<sup>44</sup>;
- The Conservation of Habitats and Species Regulations 2017<sup>45</sup>; (as amended<sup>46</sup>) (Habitat Regulations);
- The Wildlife and Countryside Act 1981 (as amended)<sup>47</sup>;
- The Natural Environment and Rural Communities (NERC) Act 2006<sup>48</sup>; and
- UK Biodiversity Framework (2024)<sup>49</sup>.

## National and Local Planning Policies

- Overarching National Policy Statement for Energy (2023) (EN-1) with reference to Section 4.6 for assessment principles on Environmental and Biodiversity Net Gain and Section 5.4 for impacts<sup>50</sup>;
- National Policy Statement for Renewable Energy Infrastructure (2023) (EN-3)<sup>51</sup> with particular reference to Paragraph 2.3.6 for National designations, Paragraphs 2.10.76 - 2.10.90 for impacts and paragraphs 2.10.12 – 2.10.13 for mitigation;
- National Policy Statement for Electricity Networks Infrastructure (2023) (EN-5)<sup>52</sup> with particular reference to paragraph 2.5.1 for environmental and biodiversity net gain, paragraphs 2.9.3 – 2.9.6 regarding impacts; and paragraphs 2.10.2 – 2.10.4 regarding mitigation<sup>53</sup>;
- National Planning and Policy Framework (2024) (NPPF)<sup>54</sup> with particular reference to Chapter 15 – Conserving and enhancing the natural environment.
- Uttlesford Local Plan (2005)<sup>55</sup> with particular references to Policies ENV7, ENV8 and GEN7;
- Essex Local Nature Recovery Strategy (LNR) (2024)<sup>56</sup>; and
- The Braintree District Local Plan (2013-2033)<sup>57</sup> with pa.

## Guidance

- CIEEM (2024). Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Chartered Institute of Ecology and Environmental Management<sup>58</sup>;
- Stanbury, *et al.* (2021). Birds of Conservation Concern (BoCC): the population status of birds in the United Kingdom<sup>59</sup>;
- Bat Conservation Trust, (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines. (4<sup>th</sup> Edition)<sup>60</sup>;
- Reason, P.F. and Wray, S. (2023). UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats<sup>61</sup>;
- Froglife (undated). Reptile Survey: An introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10<sup>62</sup>;
- English Nature (2001). Great crested newt mitigation guidelines<sup>63</sup>;

- Harris *et al.* (1989). Surveying Badgers, Mammal Society<sup>64</sup>;
- Defra (2007). Hedgerow Survey Handbook: A standard procedure for local surveys in the UK<sup>65</sup>;
- Chanin P (2003). Monitoring the Otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No. 10<sup>66</sup>;
- Gow, *et al.* (2016). The Water vole Mitigation Handbook: Mammal Society Mitigation Guidance Series<sup>67</sup>;
- Wildcru (2011). The Water Vole Conservation Handbook (3<sup>rd</sup> Edition)<sup>68</sup>;
- English Nature (2006). The Dormouse Conservation Handbook (2<sup>nd</sup> Edition)<sup>69</sup>
- UKHab Ltd (2023). UK Habitat Classification Version 2.0<sup>70</sup>; and
- MoRPh River Condition Assessment<sup>71</sup>.

### 8.3 PRELIMINARY BASELINE CONDITIONS

#### Data Sources

- 8.3.2 The preliminary baseline conditions presented here are based on desk studies (including a background data search) and ongoing ecology field surveys. The results of surveys undertaken in 2022 can be viewed in **Appendix B** of this Scoping Report. Further surveys will be undertaken throughout 2025 (see Section 8.4).
- 8.3.3 For the background data search, good EIA practice<sup>58</sup> includes identification of statutory designated sites of nature conservation interest within a potential Zone of Influence (ZoI) of the Proposed Development. MAGIC website has been consulted to obtain information about internationally important sites within 10 km, priority habitats and local and national statutory designated sites within 2 km. SACs where bats are a qualifying feature were included where they are within 30 km of the Proposed Development.
- 8.3.4 Essex Field Club (EFC) have been consulted for local records of features of ecological interest within 2 km of the Site Boundary, including non-statutory designated sites and notable and protected species. These are illustrated in **Figure 8.2**.
- 8.3.5 **Table 8.1** provides information on which data sources have been used for each specific area to inform the scoping report.

**Table 8.1 Data sources used to inform scoping**

Area	Data Sources
HG1 and HG3	<ul style="list-style-type: none"> <li>• Extended UKHab surveys (2022);</li> <li>• Great crested newt (<i>Triturus cristatus</i>) (GCN) eDNA surveys (2022);</li> <li>• Ground Level Tree Assessments (GLTA) for bats (2022 and 2024);</li> <li>• Breeding bird surveys (2022);</li> <li>• Wintering bird surveys (2024);</li> <li>• Badger (<i>Meles meles</i>) surveys (2022 and 2024);</li> <li>• Desk based review of aerial imagery, statutory designated sites; and</li> <li>• Data from EFC.</li> </ul>
HG2	<ul style="list-style-type: none"> <li>• GLTA for bats (2024);</li> <li>• Badger surveys (2024);</li> <li>• Aerial review of habitats;</li> <li>• Review of statutory designated site locations; and</li> <li>• Data from EFC.</li> </ul>
Cable Corridor Options	<ul style="list-style-type: none"> <li>• Aerial review of habitats; and</li> <li>• Review of statutory designated site locations.</li> </ul>

## Proposed Study Area

8.3.6 The proposed Study Area was established following CIEEM guidelines<sup>58</sup>, taking into consideration various factors including the likely important ecological features within the Site and the surrounding area, activities occurring during the construction, operational and decommissioning phases of the Proposed Development, and the surrounding designated sites and their ecological features. Study Areas vary according to the species and habitat which will potentially be impacted and will be subject to the desk-based assessment and field surveys.

8.3.7 This information has been reviewed to assist in identifying potential constraints for the Proposed Development and to inform the survey scope.

## Baseline Conditions

### *Designated Sites*

- 8.3.8 No international / European Sites are within 10 km of the Site Boundary. There are also no SACs where bats are a qualifying feature within 30 km of the Site Boundary. There are no national statutory designated sites within 2 km of the Site Boundary. The Site lies within multiple Impact Risk Zones (IRZ) of terrestrial statutory designated sites. However, the Proposed Development does not fall into the development categories that would require additional consultation with Natural England.
- 8.3.9 There are four locally designated sites within 2 km of the Site Boundary, all of which are local nature reserves (LNR), as shown in **Figure 8.1** and **Table 8.2**. EFC revealed six non-statutory locally designated sites within 2 km of the Site Boundary comprising six LWS. The full list together with a brief description are provided in **Table 8.2** and illustrated in **Figure 8.2**.

**Table 8.2 Statutory Designated Sites**

Designated Site	Distance from Solar PV array areas	Distance from Cable Option 1	Distance from Cable Option 2	Distance from Cable Option 3	Distance from Cable Option 4	Site Description
Flitch Way LNR	Adjacent to the Site	0.9 km	1 km	1 km	2 km	A disused railway line featuring a wildlife corridor comprising dense hedges and grassland, which form a central " <i>woodland ride</i> ". Features lowland meadow and lowland mixed deciduous woodland priority habitats.
Cuckoo Wood LNR	c.1.7 km west	0.4 km	1 km	1.3 km	n/a	Woodland habitat supporting locally rare species, in particular fungi due to the amount of dead wood found within the woodland.
Hoppit Mead LNR	n/a	n/a	1 km	1 km	1 km	A wet woodland habitat which lies within a chain of public open spaces.
Bocking Blackwater LNR	n/a	n/a	1.9 km	1.9 km	1.9 km	A large area of woodland and open space containing wildflower meadows, amenity grassland, scrub and wetland habitats. Veteran trees are present within the woodlands and open space.

**Table 8.3 Non-statutory designated sites**

Designated Site	Distance from Site	Site Description
Flitch Way LWS	Adjacent to the Site	A wildlife corridor that connects the four Essex Wildlife Trust Living Landscape Areas of Hatfield Forest, Pincey Valley, Upper Chelmer and Pods Brook Valley. It links the nature reserves and open spaces of Hatfield Forest, Honeysuckle Wood and David Cock Community Woodland (Great Dunmow), Oak Meadow (Rayne), Great Notley Country Park, Hoppits Mead and John Ray Park (Braintree). The site supports a variety of notable species including bats, badger, amphibians, reptiles, birds, plants and invertebrates.
Stebbing Green LWS	1 km northwest	Flower-rich village green and sections of roadside species-rich grassland.
Boxted Wood LWS	1.2 km north	Large ancient woodland with recent plantings of <i>Quercus robur</i> (pedunculate oak), <i>Populus</i> sp. (poplars), <i>Fagus sylvatica</i> (beech) and conifers. A semi-natural canopy of <i>Tilia cordata</i> (small-leaved lime), <i>Fraxinus excelsior</i> (ash), oak, and understory of <i>Carpinus betulus</i> (hornbeam), <i>Acer campestre</i> (field maple) and <i>Corylus avellana</i> (hazel).
White Court Wood LWS	1.3 km east	This small, possibly ancient wood has an extraordinary rich flora. The canopy largely comprises standards of pedunculate oak with some ash and <i>Acer campestre</i> (field maple) over neglected hazel coppice. <i>Sorbus torminalis</i> (Wild service tree) is also present in the canopy.
Blackbush Wood LWS	1.5 km north	Blackbush Wood has a canopy of pedunculate oak, ash and hornbeam over hazel, <i>Sambucus nigra</i> (elder) and <i>Crataegus monogyna</i> (hawthorn). Contains typical ground flora.

Designated Site	Distance from Site	Site Description
Rumley Wood LWS	1.5 km north	Over half of the ancient Rumley Wood has been grubbed out, leaving a copse of pedunculate oak, ash, hawthorn and hornbeam. A few Scots pine <i>Pinus sylvestris</i> standards are also present.

## ***Ancient Woodland***

8.3.10 The desk study revealed two areas of Ancient Woodland within 2 km of the Site Boundary with the closest located 1.3 km to the north, as shown in **Figure 8.1**.

## ***Protected and Notable Species***

8.3.11 Desk study records received from EFC identified the following protected and notable species from within the desk-study search zone with the last 10 years:

- Amphibians: Fifteen records of GCN, two records of common toad (*Bufo bufo*), seven records of smooth newt (*Lissotriton vulgaris*) and four records of common frog (*Rana temporaria*);
- Bats: Four records of barbastelle (*Barbastella barbastellus*), one record of Natterer's bat (*Myotis nattereri*), one record of Leisler's bat (*Nyctalus leisleri*), ten records of brown long-eared bat (*Plecotus auritus*), one record of an unidentified *Plecotus* species, four records of soprano pipistrelle (*Pipistrellus pygmaeus*) and six records of common pipistrelle (*Pipistrellus pipistrellus*) in 2022;
- Birds: 2,416 records of 100 species. Of these, 23 species are listed on the Birds of Conservation Concern 5 (BoCC5) Red list and 35 are listed on the BoCC5 Amber list, and several of which likely occur and breed in the farmland habitats within or close to the Site, such as skylark (*Alauda arvensis*), yellowhammer (*Emberiza citrinella*) and stock dove (*Columba oenas*). There are also records of Schedule 1 bird species such as barn owl (*Tyto alba*) and red kite (*Milvus milvus*);
- Reptiles: Two records of grass snake (*Natrix helvetica*), nine records of common lizard (*Zootoca vivipara*) and two records of slow worm (*Anguis fragilis*);
- Invertebrates: 327 recent records, 20 which are notable invertebrate species;
- Invasive non-native species: two records of Himalayan balsam (*Impatiens glandulifera*); and
- Other notable species included one record of hedgehog (*Erinaceus europaeus*) and one record of brown hare (*Lepus europaeus*).

## Survey Findings to Date

### Habitats

- 8.3.12 Areas HG1 and HG3 were subject to an Extended UKHAB survey in 2022. It is noted that these surveys are approaching their lifespan and did not include HG2, therefore these surveys will be updated in 2025 to inform the impact.
- 8.3.13 The areas which were visited in 2022 predominantly comprised arable fields which were mainly dominated by *Borago officinalis* (borage), but with some fields comprising *Triticum aestivum* (wheat). Field margins varied between 1 m to 6 m wide and were dominated by either *Arrhenatherum elatius* (false oat-grass), *Dactylis glomerata* (cock's foot) or *Lolium perenne* (perennial rye-grass).
- 8.3.14 Other habitats included hedgerows, tree lines, woodland, ponds and dry ditches. The habitats recorded were considered to be typical of dominant habitats within the wider landscape. In addition, several ponds were identified within sections HG1 and HG3 and within 250 m.
- 8.3.15 Aerial imagery review of HG2 and the Cable Corridor Options suggest similar habitat types such as arable fields, hedgerows and woodland with the addition of urban habitats (e.g. roads and hard standing within some Cable Corridor Options).
- 8.3.16 The majority of the Proposed Development's built infrastructure (i.e. Solar PV modules, substation, access tracks etc.) is proposed to be located on the Site's arable land, which is of limited ecological value. The Proposed Development will aim to maintain areas of semi-natural habitats, such as hedgerows and tree lines wherever possible. However, where it cannot be avoided, some areas of semi-natural habitats are likely to be affected, or removed, to facilitate the Proposed Development.
- 8.3.17 **Table 8.4** provides information of protected species surveys which have been undertaken.

**Table 8.4 Protected species surveys which have been undertaken**

Protected Species	Methodology	Results
Amphibians including GCN	<p>The desk study of aerial imagery identified ponds within 250 m of the Site Boundary.</p> <p>eDNA surveys of 13 ponds within HG1 and HG3 were undertaken in 2022 following the protocol recommended by Natural England<sup>72</sup>.</p>	<p>47 ponds within 250 m of the Site Boundary, of which 10 are within the Site.</p> <p>Seven ponds had GCN present, and the remaining ponds were negative in 2022.</p> <p>The dominant arable farmland habitats on-site provide sub-optimal amphibian terrestrial habitat. However, field boundary features such as hedgerows, field margins, and woodland provide suitable terrestrial habitat for amphibians.</p>
Badger	<p>Surveys undertaken checked for signs of badgers (including setts, latrines, footprints and foraging signs). Surveys were undertaken in HG1, HG2 and HG3 in January and March 2025. Surveys were undertaken following the established guidelines<sup>64</sup>.</p>	<p>As information about this species is sensitive, survey findings will be presented in a Confidential Annex, that will be made available only to the relevant authority, Natural England and appropriate wildlife groups on request.</p>
Bats (Daytime Bat Walkover)	<p>Daytime bat walkovers were undertaken as part of the Extended UKHab</p>	<p>HG1 and HG3 were assessed as having habitats which are of moderate suitability for foraging and commuting bats. Linear features within and around the Site such as</p>

Protected Species	Methodology	Results
	survey in 2022 at HG1 and HG2. The aim of this survey was to determine habitat use across the survey area and identify whether further surveys were necessary	hedgerows, woodland edges, tree lines and watercourses are considered to offer the most favourable habitats for foraging / commuting bats. All other areas were of low suitability.
Bats (GLTAs)	GLTAs for bats were undertaken at HG1 and HG2 in 2022 and all HG areas in January and March 2025. Surveys followed best practice guidelines issued by BCT <sup>60</sup> .	A number of trees located within the hedgerows or tree lines were considered to have potential bat roost features.
Breeding Birds	A Breeding Bird Survey following a reduced version of the Common Bird Census method was completed in 2022, with three visits to each area (HG1 and HG3) carried out in June and July.	The breeding bird assemblage identified was typical of the habitats and geographic location of the Site. A range of farmland, hedgerow and woodland species were recorded within the Site and immediate surrounds, with species of conservation importance including Skylark ( <i>Alauda arvensis</i> ), Yellowhammer ( <i>Emberiza citrinella</i> ) and Dunnock ( <i>Prunella modularis</i> ).
Wintering Birds	Winter Bird Surveys, following methods recommended by the Bird	The surveys have recorded small numbers of species typical of lowland arable habitats and no notable aggregations of birds were observed. There are no habitat

Protected Species	Methodology	Results
	Survey and Assessment Steering Group <sup>73</sup> , were completed between November 2024 and February 2025. Surveys were undertaken in all HG areas.	features of high foraging value to birds during the non-breeding season, such as managed bird seed strips/areas or set-aside.
Invasive Non-native Species	During the 2022 Extended UKHAB surveys, an assessment of Invasive Non-Native Species (INNS) at HG1 and HG3.	Invasive Non-Native Species (INNS) recorded were muntjac ( <i>Muntiacus reevesi</i> ) and <i>Cotoneaster</i> sp.

## 8.4 PLANNED SURVEYS

8.4.1 Further surveys will be undertaken to inform the assessment. These will be determined by the findings of additional UKHab surveys and the design (and therefore potential effects) of the Proposed Development:

- Habitats: Updated UKHab surveys will be completed throughout the Site including the two refined Cable Corridor Options. Focussed habitat surveys, e.g. River Condition Assessment (RCA), will be completed as required;
- Amphibians: Ponds which were not subject to survey previously due to access limitations will be surveyed to confirm presence or absence once access has been permitted. These surveys will include ponds within 250 m of the Site Boundary including the two Cable Corridor Options being taken forward;
- Badger: Further surveys to include the two Cable Corridor Options will be undertaken in 2025;
- Bats: Transect surveys and static detector monitoring surveys will be undertaken, in areas of suitable habitat as required following BCT guidance. Additional surveys such as tree climbing and emergence surveys will be undertaken as required depending on the suitability of the feature/s and likely impact of the Proposed Development;
- Birds: As the timings of surveys in 2022 were late in the breeding season and will be over three years old at the time of submission of the DCO application, surveys will be updated to inform the impact assessment. The breeding season surveys will be updated in 2025 using prevailing guidance recommended by the Bird Survey and Assessment Steering Group. Surveys will include the Solar PV array, including HG2 as a recent addition to the Site Boundary. Bird surveys are not planned for the Cable Corridor Options due to the temporary and localised nature of the potential effects, with potential effects on breeding birds addressed through best practice construction mitigation;
- Otter (*Lutra lutra*) and water vole (*Arvicola amphibius*): Surveys will be completed as required, in line with prevailing guidance<sup>66 67</sup>, where habitat is suitable and where there may be impacts from the Proposed Development;

- Hazel dormouse (*Muscardinus avellanarius*): Surveys will be completed as required, in line with prevailing guidance<sup>69</sup>, where habitat is suitable and where there may be impacts from the Proposed Development;
- Reptile: Surveys will be completed as required, in line with prevailing guidance<sup>62</sup>, where habitat is suitable and where there may be impacts from the Proposed Development; and
- INNS: An updated walkover survey for INNS will be completed as part of the Extended UKHAB survey.

## 8.5 TECHNICAL SCOPE AND APPROACH TO EIA

### Level of Assessment

- 8.5.1 The assessment within the ES will consider the likely effects of construction, operation (including maintenance) and decommissioning activities of the proposed development on habitats and species of conservation importance.

### Assessment of Effect Significance

- 8.5.2 The assessment will be informed by a combination of field surveys, desk study findings, and consultation with relevant statutory and non-statutory organisations. Where required, mitigation measures will be proposed to avoid, minimise, or reduce significant effects. The assessment will also consider potential cumulative effects.
- 8.5.3 The residual effects will be presented to make it clear what the likely significance of the effects of the Proposed Development on nature conservation interests will be, with all mitigation measures in place.

### Determining the Significance of Effects

- 8.5.4 The significance of effects will be determined using standard impact assessment methods and criteria in accordance with the CIEEM Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland<sup>58</sup>, including the following:
- The magnitude of both beneficial and adverse effects, as determined by intensity, frequency and by the extent of the effect in space and time;
  - The vulnerability of the habitat or species to the changes likely to arise from the Proposed Development;

- The ability of the habitat, species, or ecosystem to recover, considering both fragility and resilience; and
- The viability of component ecological elements and the integrity of ecosystem function, processes, and favourable condition.

8.5.5 Ecological features (i.e. species, habitats, ecosystems and their functions /processes) which are deemed to be both important and likely to be affected by the Proposed Development will be Important Ecological Features (IEFs) and scoped into the assessment.

8.5.6 Ecological features can be important for a variety of reasons, and may relate, for example, to rarity, the extent to which they are threatened throughout their range, or to their rate of decline. The level of importance of features identified during the desk study and baseline surveys will be determined with reference to CIEEM guidance, and include a consideration of relevant legislation, conservation status, population size and distribution and the level of Proposed Development use with potential to impact habitats and protected species. The CIEEM recommended geographical frame of reference will be used which is:

- International;
- National;
- Regional;
- County;
- Local; and
- Less than Local.

8.5.7 In accordance with the CIEEM guidelines<sup>58</sup> an effect is either 'significant' at a particular geographical level (e.g. internationally, nationally, locally), or 'not significant'. A 'significant effect' is an effect *"...that either supports or undermines biodiversity conservation objectives for important ecological features, or for biodiversity in general."*

## 8.6 POTENTIAL SIGNIFICANT EFFECTS AND MITIGATION

### Construction

8.6.1 Potential impacts on ecological receptors include:

1. Loss of, and disturbance to, terrestrial habitats due to land take by the Proposed Development;

2. Loss of land that is possibly linked functionally to statutory and non-statutory designated sites, which may be important for the maintenance of species' conservation status;
3. Adverse impact on water quality; and
4. Direct disturbance of, and harm to, animals, including the displacement of species from the proximity of the Proposed Development.

8.6.2 Construction without mitigation could also result in the direct disturbance of, and harm to, animals including the displacement of species from the proximity of the Proposed Development. The assessment will determine the significance of these effects.

## Operation

8.6.3 The main effects during operation are considered to be disturbance and displacement of species using the Site and/or immediate surrounds. A full review of operational processes of the Proposed Development will be carried out to identify potential effects (both beneficial and adverse) on ecological features. These include, but are not limited to:

- Potential barrier effects of the Proposed Development on terrestrial mammals (including badger, brown hare and hedgehog) moving through the area, particularly the presence of solar PV modules;
- Habitat creation, enhancement and sensitive management throughout the operational life of the Proposed Development;
- Potential attraction to or avoidance by species to the solar PV modules; and
- Noise or visual disturbance from the on-site substation and/or operational solar PV array.

## Decommissioning

8.6.4 Potential impacts of decommissioning works on ecology features of the Proposed Development are likely to be similar to those during construction. Prior to decommissioning, it is anticipated that the Site would be assessed by an ecologist to identify the requirement for surveys to update the baseline condition and / or any mitigation or best practice measures, in accordance with prevailing guidance and legislation at the time of works.

## Mitigation

- 8.6.5 Standard construction and operational good practice will be adopted to safeguard habitats and species. Good practice mitigation measures will be described in the ES and the means for securing them will be set out in relevant documents (e.g. Outline CEMP). Safeguards will include:
- Pre-construction surveys for protected species such as badgers;
  - Minimum 15 m buffer from woodlands;
  - Appropriate buffer applied for tree's root protection area following arboriculture surveys;
  - Minimum 20 m buffer from watercourses including ditches;
  - Minimum 10 m buffer from hedgerows; and
  - Minimum 20 m buffer from ponds.
- 8.6.6 The Proposed Development will follow the mitigation hierarchy as per CIEEM guidelines and relevant planning policy. The Proposed Development will primarily be built on habitats of lower conservation value (i.e. arable farmland). Areas of important habitats are present, and the design of the Proposed Development will seek to avoid these areas where possible.
- 8.6.7 Good practice measures aside, site-specific mitigation measures will also be identified following the completion of the surveys and the assessment and will include, but not be limited to:
- Environmental Good Practice on Site;
  - Protected species licences (if required);
  - Pollution Prevention Guidelines;
  - Clearly defined working areas that exclude works around sensitive features (e.g. badger setts and bat roosts); and
  - Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.

## Biodiversity Net Gain

- 8.6.8 The Environment Act 2021 (Schedule 15) "*makes provision about biodiversity gain in relation to development consent for nationally significant infrastructure*". This is expected to be mandatory for NSIP projects at application from November 2025 and will mean applications will be required to achieve 10% biodiversity net gain.

- 8.6.9 As per the overarching NPS (EN-1) “*Energy NSIP proposals, whether onshore or offshore, should seek opportunities to contribute to and enhance the natural environment by providing net gains for biodiversity, and the wider environment where possible.*”
- 8.6.10 The Proposed Development is committed to achieving over 10% biodiversity net gain through habitat retention, enhancement and creation with consideration to local priority habitats and opportunities will be sought to link delivery of BNG to relevant local plans and strategies.
- 8.6.11 A BNG Assessment Report will be produced in accordance with the methodology set out in the Statutory Biodiversity Metric User Guide using the Statutory Biodiversity Metric and the following relevant guidance such as:
- CIEEM, Construction Industry Research and Information Association (CIRIA) & Institute of Environmental Management and Assessment (IEMA): Biodiversity Net Gain: Good practice principles for development<sup>74</sup>;
  - CIEEM, CIRIA & IEMA. Biodiversity Net Gain: Good practice principles for development. A practical guide<sup>75</sup>; and
  - HM Government: Biodiversity net gain planning practice guidance<sup>76</sup>.
- 8.6.12 A detailed Habitat Monitoring and Management Plan (HMMP) will be prepared; this would include details of the creation and ongoing monitoring and management of created habitats for BNG and compensation alongside the enhancement of existing habitats.
- 8.6.13 The BNG features will be maintained throughout the lifetime of the Proposed Development and for at least 30 years in accordance with the provisions of an approved HMMP. A draft HMMP will be submitted with the DCO application.

### **Habitat Regulations Assessment Screening**

- 8.6.14 As per **Table 8.2**, there are no international sites within the respective search areas.
- 8.6.15 The closest sites are the Blackwater Estuary (Mid-Essex Coast Phase 4) Special Protection Area (SPA) and Ramsar sites and the Essex Estuaries Special Area of Conservation (SAC), all approximately 19 km southwest of the Site Boundary. Qualifying features include

primarily coastal and wetland bird species and coastal habitats, therefore there will be no connectivity with the Site and, over such distances, there is no pathway for indirect effects.

- 8.6.16 In accordance with guidance<sup>77</sup>, a brief statement will be included in the submission of the DCO application confirming there are no pathways that could lead to effects on a European site.

## 8.7 PROPOSED SCOPE OF THE EIA

- 8.7.1 On the basis of the sensitivities described above, the potential effects proposed to be scoped into or out of the EIA for this topic are presented in **Tables 8.5** and **8.6**.

**Table 8.4 Elements of the Biodiversity and Nature Conservation Assessment Proposed to be Scoped In to the EIA**

Potential Effect / Topic	Proposal for Assessment Within EIA	Rationale
<b>Construction and Decommissioning</b>		
Loss of, and disturbance to habitat.	Scoped In.	Potential effects include direct loss of habitat, disturbance and indirect impacts such as pollution.
Amphibians including GCN.	Scoped In.	Potential effects include loss of habitat, displacement and disturbance during construction, operation and decommissioning.
Badgers.	Scoped In.	Potential effects include loss of habitat, habitat fragmentation, displacement and disturbance.
Bats (roosting).	Scoped In.	Potential effects include loss of roosts and disturbance. However, it is anticipated that the design of the Proposed Development will retain trees which have potential for roosting bats and this element will be scoped out.
Bats (foraging and commuting).	Scoped In.	Potential effects include habitat loss, disturbance and fragmentation.

Potential Effect / Topic	Proposal for Assessment Within EIA	Rationale
Breeding Birds.	Scoped In.	Potential effects include habitat change, short-term displacement or disturbance.
Hazel Dormice.	Scoped In.	Potential effects include loss of habitat, displacement and disturbance.
Reptiles.	Scoped In.	Potential effects include loss of habitat, displacement and disturbance.
Invertebrates.	Scoped In.	Potential effects include loss of habitat, displacement and disturbance. However, the Proposed Development will aim to avoid the majority of suitable areas of habitat and as such will likely be scoped out following baseline habitat surveys and design.
Other mammals (such as hedgehog and brown hare).	Scoped In.	Potential effects include loss of habitat, habitat fragmentation, displacement and disturbance.
Otter.	Scoped In.	Potential effects include loss of habitat, habitat fragmentation, displacement and disturbance.
Water Vole.	Scoped In.	Potential effects include loss of habitat, habitat fragmentation, displacement and disturbance.
<b>Operation</b>		
Amphibians including GCN.	Scoped In	Potential effects include disturbance from maintenance and habitat management.
Badgers.	Scoped In	Potential effects include disturbance from maintenance and habitat management.
Bats (roosting).	Scoped In	Potential effects include disturbance from maintenance and habitat management.

Potential Effect / Topic	Proposal for Assessment Within EIA	Rationale
Bats (foraging and commuting).	Scoped In	Potential effects include disturbance from new lighting, maintenance and habitat management.
Breeding Birds.	Scoped In	Potential effects include habitat change and long-term displacement.
Hazel Dormouse.	Scoped In	Potential effects include disturbance from maintenance and habitat management.
Reptiles.	Scoped In	Potential effects include disturbance.
Invertebrates.	Scoped In	Potential effects include disturbance. However, the Proposed Development will aim to avoid the majority of suitable areas of habitat and as such will likely be scoped out following baseline habitat surveys and design.
Other mammals (such as hedgehog and brown hare).	Scoped In.	Potential effects include disturbance from maintenance and habitat management.
Otter.	Scoped In.	Potential effects include disturbance from new lighting, maintenance and habitat management.
Water Vole.	Scoped In.	Potential effects include disturbance from maintenance and habitat management.

**Table 8.6 Elements of the Biodiversity and Nature Conservation Assessment Proposed to be Scoped Out of the EIA**

Potential Effect / Topic	Proposal for Assessment Within EIA	Rationale
<b>Construction and Decommissioning</b>		

Potential Effect / Topic	Proposal for Assessment Within EIA	Rationale
International / European designated sites within 10 km.	Scoped Out.	There are no international / European designated sites within 10 km of the Site.
Statutory designated sites within 2 km.	Scoped Out.	The Proposed Developments design avoids statutory designated sites. Mitigation measures will be outlined within the CEMP and DEMP which will be implemented during construction and decommissioning to avoid indirect impacts e.g. dust mitigation measures and pollution prevention plans, as per commitment BIO1, BIO3 and BIO6.
Non-statutory designated sites within 2 km.	Scoped Out.	There are no LWS within the Site boundary and limited pathways for indirect effects. Mitigation measures will be outlined within the CEMP which will be implemented during construction and decommissioning to avoid indirect impacts e.g. dust mitigation measures and pollution prevention plans, as per commitment BIO1 and BIO6
SACs within 30 km where bats are qualifying features.	Scoped Out.	There are no SACs with bats as qualifying features within 30 km of the Site.
<b>Operation</b>		
International / European designated sites within 10 km.	Scoped Out.	There are no international / European designated sites within 10 km of the Site.
Statutory designated sites within 2 km.	Scoped Out.	No indirect effects are anticipated as best practice maintenance and operation measures will be implemented.
Non-statutory designated sites within 2 km.	Scoped Out.	There are no LWS within the Site boundary and limited pathways for indirect effects during operation. Best

Potential Effect / Topic	Proposal for Assessment Within EIA	Rationale
		practice maintenance and operation measures will be implemented.
SACs within 30 km where bats are qualifying features.	Scoped Out.	There are no SACs with bats as qualifying features within 30 km of the Site.
Wintering Birds.	Scoped Out.	Due to the low numbers of birds recorded during the Winter Bird Surveys and the apparent low value of habitats for wintering birds, potential effects on wintering birds will not be assessed in the EIA. Habitat change will likely have a beneficial effect on the wintering bird assemblage.
Invasive non-native species.	Scoped Out.	Based on the known habitat types, the background data search and ongoing habitat surveys the risk of INNS being present is low. Measures within the CEMP will aim to avoid the introduction and or spread of INNS. Should any INNS be identified during habitat surveys measures will be implemented to avoid spread. These measures will be secured through an invasive species management plan, as per Commitments BIO9.

## 8.8 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTIES

- 8.8.1 As baseline surveys are still underway, and certain areas still require an Extended UKHAB survey (including the Cable Corridor Options), there may be new findings which result in the increase/decrease of the survey scope which has been described in this chapter.
- 8.8.2 It is assumed that woodlands, ponds, watercourses and the majority of hedgerows will be retained as part of the Proposed Development and that buffers for specific biodiversity features will be implemented into the design to seek to avoid effects.

## 9. CLIMATE CHANGE AND GREENHOUSE GAS ASSESSMENT

### 9.1 INTRODUCTION

- 9.1.1 This chapter outlines the scope of the Climate Change and Greenhouse Gases (GHGs) assessment for the Proposed Development. It details the baseline conditions, potential effects, mitigation measures, and assessment methodology. The potential effects of the Proposed Development have been identified through a technical review of the current design, construction, operation (including maintenance), and decommissioning principles of the Proposed Development.
- 9.1.2 It will also outline the proposed approach to the technical scope of this chapter in the EIA and determine the specific elements that are scoped in and out of each assessment, aligning with the requirements of the EIA regulations and Institute of Environmental Management and Assessment (IEMA) guidance for assessing climate mitigation<sup>78</sup> and adaptation<sup>79</sup> in EIAs.

### 9.2 TOPIC SPECIFIC LEGISLATION, POLICY AND GUIDANCE

- 9.2.1 This section identifies the relevant legislation, planning policy and guidance that underpin the scoping of the EIA. Specifically, the Climate Change Resilience Review (CCRR) and In-Combination Climate Impacts (ICCI) assessments will align with industry guidance, notably that from the Equator Principles 4 (EP4) Guidance Note for Climate Change Risk Assessments<sup>80</sup> and the IEMA EIA Guidance for Climate Change Resilience and Adaptation Document<sup>81</sup> (herein referred to as IEMA Guidance).
- 9.2.2 Overarching guidance from The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (The EIA Regulations) alongside legislation, planning policy and guidance relating to climate change, and pertinent to the Proposed Development include:

#### Legislation

#### ***Climate Change Act 2008<sup>82</sup> as amended by the Climate Change Act (2050 Target Amendment) Order 2019<sup>83</sup>***

- 9.2.3 A significant piece of legislation in the UK aimed at addressing climate change, the Climate Change Act 2008 sets a legally binding target to

reduce the UK's greenhouse gas emissions by at least 100% from 1990 levels by 2050. This target was strengthened by the Climate Change Act (2050 Target Amendment) Order 2019, which amended the original Act to legally commit the UK to achieving net zero emissions by 2050, replacing the previous target of an 80% reduction. The Act also introduced a system of carbon budgeting, which sets limits on the total amount of greenhouse gases the UK can emit over five-year periods. Additionally, it established the Committee on Climate Change, an independent body to advise the government on emissions targets and report on progress.

### ***Carbon Budget Orders 2009<sup>84</sup>, 2011, 2016, and 2021***

- 9.2.4 Statutory instruments that set the specific carbon budgets for the UK for the periods 2023-2027, 2028-2032 and 2033-2037 (budgets were also set for years prior, from 2008, although these were not deemed relevant given the timeline of this Proposed Development). These budgets cap the maximum level of the net UK carbon for each five-year period, ensuring that the UK stays on track to meet its long-term emissions reduction targets.

### ***The Infrastructure Planning (EIA) Regulations 2017<sup>85</sup>***

- 9.2.5 The Infrastructure Planning EIA Regulations 2017 require nationally significant infrastructure projects to assess both their impact on climate change and their vulnerability to climate risks. This includes evaluating greenhouse gas emissions, resilience to extreme weather, cumulative climate impacts, and necessary mitigation measures. Developers must integrate climate risk assessments into EIAs, ensuring projects are designed to be both low-carbon and climate-resilient. Decision-makers must consider these factors before granting development consent, with ongoing monitoring to ensure compliance. Where EIAs are required, EIA Regulations provide general guidance relevant to climate state that the assessment must *"identify, describe and assess in an appropriate manner... the direct and indirect significant effects of the Proposed Development on...climate"*<sup>2</sup>.

## National Planning Policy

9.2.6 National Policy Statements (NPS) are the primary policy basis for Nationally Significant Infrastructure Project (NSIP) development. The following NPSs are relevant to the Proposed Development.

- NPS EN-1 (Overarching National Policy Statement for Energy):
  - Paragraph 4.10, particularly 4.10.3, 4.10.11, 4.10.13 - 4.10.17, in relation to climate impacts and adaptation in response to climate projections. This section states that projects subject to these regulations must ensure that new energy infrastructure is designed to be resilient to both current and projected climate change impacts, such as flooding, heatwaves, and storms. They must incorporate nature-based solutions where possible, assess risks under multiple climate scenarios, and adhere to government guidelines and industry standards for climate adaptation. Safety-critical infrastructure must be planned using a risk-averse approach, with adaptation measures in place to address potential long-term climate challenges;
  - Paragraphs, 5.5.56, 5.10.5, 5.10.34, 5.11.30, 5.12.6, 5.16.1 in relation to adverse effects and benefits. These paragraphs state that developments must ensure that projects near designated landscapes minimise harm to their character. They should also implement measures to mitigate effects on public access routes, such as National Trails, and consider opportunities to enhance access where possible. Noise assessments must address potential short- and long-term impacts on sensitive receptors and health, while all reasonable steps should be taken to mitigate adverse effects on water environments, including groundwater and coastal waters;
  - Paragraphs 5.8 in relation to climate projections, flood risk and the importance of relevant mitigation. This section specifies that the development of energy infrastructure projects must prioritise flood risk management by avoiding areas prone to flooding wherever possible and ensuring that infrastructure in such locations remains resilient and operational during floods. They must apply the Sequential and Exception Tests to demonstrate that projects in flood risk zones are essential, provide broader sustainability benefits, and do not increase

- flood risks elsewhere. Designs should incorporate flood-resilient materials, natural flood management techniques, and contingency plans to minimise disruption and ensure long-term safety in the face of climate change-induced flooding;
- Paragraph 5.3.4 in relation to GHG assessments. This section specifies that all NSIPs for energy must include a comprehensive GHG assessment in their Environmental Statement (ES). This should cover whole-life emissions from construction, operation, and decommissioning, including land use changes. Proposals must demonstrate efforts to minimise climate impacts at each stage, quantify embodied emissions from construction, and prioritise reducing energy demand during operation. Best available techniques should be applied to lower operational emissions, with total energy consumption and associated carbon emissions calculated. Any residual emissions should be assessed in relation to national and international climate targets, with consideration given to voluntary offsetting using a recognised framework; and
  - Paragraphs 5.3.6, 5.3.6, and 5.3.7 in relation to GHG mitigation. This section specifies that a GHG assessment should be used to minimise emissions at every stage of an energy infrastructure project, ensuring that reductions are achieved while maintaining a secure, reliable, and affordable energy supply during the transition to net zero. Applicants should seek opportunities to incorporate nature-based or technological solutions to mitigate or offset emissions from construction and decommissioning. Measures to reduce and offset emissions must be outlined in a GHG Reduction Strategy, secured under the Development Consent Order, which should include the creation and preservation of carbon stores such as woodlands, hedgerows, peatlands, and other natural habitats.
  - NPS EN-3 (National Policy Statement for renewable energy infrastructure), with particular reference to national designations, paragraphs 2.3.6-2.3.8. These paragraphs state that when assessing applications for Carbon, Nature, and People (CNP) infrastructure in nationally recognised designated sites (such as Sites of Special Scientific Interest (SSSIs), National Parks, Areas of Outstanding Natural Beauty, and World Heritage Sites), the

Secretary of State will assume that the relevant tests in EN-1 have been met, provided any significant adverse effects are clearly outweighed by the urgent need for this infrastructure. Consideration will also be given to the government's Environmental Improvement Plan, the Environment Act 2021, and relevant Welsh policies, ensuring alignment with environmental goals and targets. Additionally, when evaluating the impact on historic assets, the Secretary of State will weigh the public benefits of large-scale renewable projects, including their role in mitigating climate change, enhancing energy security, and achieving net zero targets, against any potential harm to heritage significance.

- NPS EN-5 (National Policy Statement for electricity networks infrastructure), paragraph 2.3.1 - 2.3.3, which references NPS EN-1 insofar as climate change resilience should be taken into account in the development of infrastructure for electricity networks. These paragraphs specify that Proposed Developments should assess their vulnerability to climate change impacts, particularly for infrastructure located in flood-prone, coastal, or underground areas. Key risks to address include flooding (especially for critical substations), wind and storm impacts on overhead lines, increased transmission losses due to higher temperatures, earth movement from flooding or drought, and coastal erosion affecting offshore transmission cables and substations. The resilience of the project must be assessed in the Environmental Statement, considering future climate change risks such as flooding and coastal change, as outlined in EN-1; and paragraph 2.4.2 which states that applicants should consider the criteria for good design set out in EN-1.

9.2.7 The National Planning Policy Framework (NPPF) (2024)<sup>86</sup> establishes that climate change is a material consideration for the determination of planning applications:

- Paragraph 8 establishes climate change as a named component of the overarching environmental objective that contributes to achieving sustainable development;
- Section 14 outlines further details about the consideration of climate change in planning, especially relating to meeting net zero

and improving resilience to a range of climate impacts, such as overheating and flooding;

- Paragraph 161 supports the transition to net zero by 2050 through a reduction of GHG emissions, and encourages improved resilience to a full range of climate impacts in broad terms;
- This position is reiterated in paragraphs 163 and 164, which makes it clear that climate change is a material consideration for planning applications; and
- In relation to the determination of planning applications for renewable energy developments, paragraph 168 recognises that applicants are not required to demonstrate the overall need for renewable energy and that local planning authorities should give significant weight to the benefits of the proposal's contribution to achieving net zero.

## **National Guidance**

### ***Planning Practice Guidance, Climate Change<sup>87</sup>***

9.2.8 This guidance advises local planning authorities on integrating climate change mitigation and adaptation measures into the planning process. It emphasises the importance of considering climate change impacts in Local Plans, ensuring developments are resilient to future climate risks, and promoting sustainable development practices. The guidance also highlights the statutory requirements for local authorities to include climate change policies in their Local Plans, in line with the Climate Change Act.

### ***2022 Environmental Impact Assessment: Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance<sup>88</sup>***

9.2.9 The 2022 Environmental Impact Assessment: Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance provides the latest UK guidance for evaluating GHG emissions in development projects. It adopts a whole lifecycle approach, assessing emissions not only from construction and operation but also from decommissioning and post-lifecycle impacts. This methodology ensures a comprehensive and proportionate assessment, allowing for a robust 'worst case scenario' evaluation based on the project's scale and nature.

## **2020 Environmental Impact Assessment Guide to: Climate Change Resilience & Adaptation<sup>89</sup>**

9.2.10 This guidance provides a framework for integrating climate change resilience and adaptation into the EIA process. It outlines procedural steps and supporting guidance to ensure that climate change impacts are considered at all stages of project design and development, from initial scoping to post-implementation monitoring. The document emphasises the importance of assessing both the development's vulnerability to climate change and its potential impacts on the environment under future climate scenarios.

### **Local Planning Policy**

- 9.2.11 The national planning policy context identified above requires the consideration of climate change resilience as part of planning proposals. Climate projections should be analysed, and appropriate climate change adaptation measures considered throughout the design process. Specific climate change risks identified within these policies include flooding, drought, coastal change, rising temperatures and associated damage to property and people.
- 9.2.12 The Proposed Development covers two Local Planning Authorities (LPAs):
- Braintree District Council; and
  - Uttlesford District Council.
- 9.2.13 Local planning policies identify the need to consider and, where appropriate, mitigate GHG emissions associated with new development. The key local planning policies that will be considered are:
- Uttlesford Local Plan 2005<sup>90</sup>;
  - Uttlesford Local Plan 2021 – 2041 (emerging)<sup>91</sup>;
  - Felsted Neighbourhood Plan<sup>92</sup>; and
  - Braintree District Local Plan 2033<sup>93</sup>.
- 9.2.14 Both Braintree District Council and Uttlesford District Council have planning guidance documentation around receptors sensitive to climate change including biodiversity and habitat protection<sup>94,95</sup>. Additionally, both councils have declared climate emergencies and have GHG reduction targets accordingly<sup>96,97</sup>. In the case of both Councils, this emergency fuelled a commitment to achieving net-zero

by 2030 with regards to council activities and partners, residents and local businesses where possible.

### 9.3 PRELIMINARY BASELINE CONDITIONS

#### Data Sources

9.3.2 The ES will present detailed information on the GHG impact and climate change resilience of the Proposed Development following the review and analysis of data sources including, but not limited to:

- Physical climate risk results data from UK Climate Projections 2018 (UKCP8);
- Climate data derived from the Intergovernmental Panel (IPCC) on Climate Change's Coupled Model Intercomparison Project Phase 6 (CMIP6);
- Physical climate risk results data published by Local Planning Authorities, such as within Local Plans, or government agencies, such as the Environment Agency's Flood Risk Mapping;
- Data produced as a result of the EIA conducted for other environmental topics, such as flood modelling; and
- Construction, operation and decommissioning activity data, such as energy and fuel consumption data.

#### Proposed Study Area

##### *Greenhouse Gases*

9.3.3 The GHG impact assessment Study Area encompasses direct and indirect GHG emissions generated by activities within the Site Boundary during construction, operation and maintenance, and decommissioning of the Proposed Development.

##### **Climate Change**

9.3.4 The Study Area for the CCRR will be all land within the Site Boundary.

9.3.5 This will include the construction, operation (including maintenance), and decommissioning of the Proposed Development (see Breakdown of the Proposed Development Components in **Chapter 3** for component specific information).

- 9.3.6 It does not include wider climate change resilience reviews for any infrastructure beyond the Proposed Development, i.e. energy supply or any UKPN owned assets.

## **Preliminary Baseline Conditions**

### ***Greenhouse Gases***

- 9.3.7 The baseline is the GHG emissions associated with the mix of electricity generators on the UK grid. This indicator represents the baseline case of equivalent emissions for the Proposed Development. By comparing the GHG emissions of the Proposed Development against the baseline, the overall net impact of the Proposed Development on the climate can be assessed.

### ***Climate Change***

- 9.3.8 The Site primarily consists of greenfield and agricultural land, with field margins generally defined by dense hedgerows and scattered trees.
- 9.3.9 The River Ter crosses through HG2 and flows in a southerly direction through the centre of the Site. As a result, the Site falls within the EA Flood Zone 3 which shows a high risk of flooding, with a 1 in 100 (1%) or greater chance of flooding each year from the river under baseline (current) conditions.
- 9.3.10 The Proposed Development is located in a temperate climate region, with monthly mean temperatures ranging from 4.5°C in January to 17.6°C in July, with monthly precipitation averages ranging from 37.30 mm (March) to 64.43 mm (October) (Met Office observations)<sup>9899</sup>. The baseline water stress level at the Site is classified as Low-Medium by the World Resource Institutes Water Risk Atlas but is projected to become a medium-high water stress area by 2050 under the SSP126 (optimistic) climate projection<sup>100</sup>.

## **9.4 TECHNICAL SCOPE AND APPROACH TO EIA**

### **Greenhouse Gases**

- 9.4.2 The GHG assessment will estimate GHG emissions generated during the construction, operation and decommissioning of the Proposed Development. The following table details the likely sources of GHG emissions.

**Table 9.1 GHG Emissions Sources**

<b>Lifecycle Stage</b>	<b>Activity</b>	<b>Primary Emission Source</b>
Construction.	Site preparation Civils works.	Vehicles and equipment used (e.g. HGVs, heavy lift machinery), including fuel used during the construction phase. Electricity or fuel consumption for heating and lighting in any temporary site buildings and accommodation facilities.
	Construction of panels and associated infrastructure.	Embodied GHG emissions associated with the extraction, manufacture and transport of materials and components. Emissions from diesel, petrol, or other fuels used in construction vehicles to transport materials, components and wastes.
Operation.	Operation and maintenance of the Proposed Development, including maintenance or replacement of panels.	Consumption of energy (electricity and other fuels) from plant, vehicles, and generators, including heating and lighting of any site buildings). Leakage of potent Sulphur Hexafluoride (SF6) from electrical equipment, during operation.
Decommissioning	Decommissioning of the Proposed Development, removal of equipment and restoration	Vehicles and equipment used (e.g. HGVs, heavy lift machinery), including fuel. Fuel and energy use in facilities, offices, accommodation etc.

9.4.3 In line with the World Business Council for Sustainable Development and World Resources Institute GHG Protocol guidelines<sup>101</sup>, the GHG assessment will be reported as tonnes of carbon dioxide equivalent (tCO<sub>2</sub>e) and will consider the seven Kyoto Protocol gases as relevant:

- Carbon dioxide (CO<sub>2</sub>);
- Methane (CH<sub>4</sub>);

- Nitrous oxide (N<sub>2</sub>O);
- Sulphur hexafluoride (SF<sub>6</sub>);
- Hydrofluorocarbons (HFCs);
- Perfluorocarbons (PFCs); and
- Nitrogen trifluoride (NF<sub>3</sub>).

9.4.4 Expected GHG emissions arising from the operational emissions of the Proposed Development, will be quantified using a calculation-based methodology as per the following equation, and aligned with the GHG Protocol:

$$GHG\ emissions = Activity\ data \times Emissions\ factors \times Global\ warming\ potential$$

9.4.5 Department for Energy Security and Net Zero's (DESNZ) most up to date emissions factors<sup>102</sup> will be used as the source data for calculating GHG emissions.

9.4.6 To understand the impact of the Proposed Development on the climate, the GHG emissions intensity of the Proposed Development will be evaluated against alternative forms of generation including gas-fired combined cycle gas turbine (CCGT), hydro generation and biomass generation. These generators provide a useful comparison as they are the most likely alternative type of generator in the absence of the Proposed Development (by supporting the grid with renewable generation capacity and stability services). The project will also be evaluated vs the predicted declining UK grid intensity.

9.4.7 The results of the GHG assessment and the comparison with suitable alternative capacity will be evaluated against the IEMA significance criteria as detailed in **Table 9.2**.

**Table 9.2 Example of Significance Criteria Relevant to GHG Emissions Assessments**

Significance	Significance Criteria
Major adverse:	The project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.

Significance	Significance Criteria
Moderate adverse:	The project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.
Minor adverse:	The project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.
Negligible:	The project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.
Beneficial:	The project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

## Climate Change

- 9.4.8 The EIA will present two assessments of climate change:
- 9.4.9 A Climate Change Resilience Review (CCRR), which will determine the potential for a changing climate to result in significant effects to the Proposed Development; and
- 9.4.10 An In Combination Climate Impact (ICCI) assessment, which will determine the potential for climate change to affect sensitive receptors identified by other environmental disciplines.
- 9.4.11 Both assessments will consider how the Proposed Development can be adapted to increase its resilience to future climate change. Where

adaptation measures are identified, these will be presented in the EIA.

- 9.4.12 The technical scope and approach to these assessments is provided below.

### **CCRR**

- 9.4.13 The CCRR will qualitatively assess the Proposed Development's resilience<sup>103</sup> to climate change following this methodology derived from the Equator Principles (EP4) and IEMA Guidance.
- 9.4.14 The assessment provides a mechanism to identify climate risks and integrate resilience measures into design and management plans of the Proposed Development, ensuring the long-term sustainability and safety under changing climate conditions.
- 9.4.15 The CCRR will identify potential climate hazards and risks to the Proposed Development, analyse the risks using global climate models across time horizons appropriate to the design lifetime of the Proposed Development, and consider at least two climate scenarios.
- 9.4.16 The intensity of future climate hazards will be qualitatively evaluated to determine whether it could present a potentially significant impact to the Proposed Development. Where potentially significant impacts are identified, adaptation and resilience measures will be recommended to implement within the design of the Proposed Development.
- 9.4.17 A more detailed methodology will be provided in the next phase of the EIA process.

### **ICCI**

- 9.4.18 The ICCI will identify sensitive receptors from other environmental chapters to assess the combined effects of Proposed Development and future climate change on these receptors.
- 9.4.19 Where the Proposed Development and future climate change combine to result in a potentially significant effect, the ICCI will recommend measures to reduce the significant effect.
- 9.4.20 The final approach and methodology for the ICCI Assessment is contingent upon the confirmation of:
- Sensitive receptors relevant to environmental disciplines;

- Future climate projections data; and
- Scoping of climate hazards and corresponding risk statements for the development area.

9.4.21 The final methodology for the ICCI Assessment will be determined following receipt of this information.

## 9.5 POTENTIAL SIGNIFICANT EFFECTS AND MITIGATION

### Greenhouse Gases

- 9.5.2 For this assessment, any increase in GHG emissions compared to the baseline is considered to have a potential impact due to the climate's high sensitivity to rising GHG levels. This aligns with IEMA guidance, which emphasises that all GHG emissions can be significant. The results of the GHG assessment and the comparison with suitable alternative generation capacity will then be evaluated against the IEMA significance criteria detailed in **Table 9.2**.
- 9.5.3 An Outline CEMP will be prepared and submitted as part of the DCO Application. This will form the basis of the CEMP which will be produced and discharged under a requirement by the selected Principal Contractors to include best practice construction measures, such as low carbon design specifications including energy-efficient lighting and durable construction materials to reduce maintenance and replacement cycles.
- 9.5.4 Any identified or necessary mitigation measures will be outlined in the GHG impact assessment within the ES. These measures may address GHG emissions related to the operation of the Proposed Development and would likely be included as part of the outline Operational Environmental Management Plan which would be submitted as part of the planning application. Mitigation measures that may be relevant include:
- The Proposed Development aims to significantly contribute to the UK's Net Zero target by decarbonising the electricity system;
  - Construction emissions will be minimised by reducing transport emissions, prioritising low-carbon materials, and evolving these measures as the Proposed Development's design progresses; and
  - Decommissioning emissions will be minimised through recycling of PV modules and other components.

## Climate Change

### CCRR

9.5.5 The climate change resilience review identifies the resilience of the Proposed Development to future climate change. A set of climate hazards that may be relevant to the Proposed Development are presented in **Table 9.3**, alongside a description of their potential to result in significant effects to the Proposed Development. The scoping of climate hazards in **Table 9.3** will be determined following the review of:

- Preliminary baseline climate conditions;
- Preliminary design information;
- Projected climate trends across the Proposed Development lifecycle; and
- NPS guidance.

9.5.6 Specific NPS guidance requires a review of drought risk, flooding, extreme rainfall and sea level rise, however, other types of climate and weather-related hazards from the EP4 guidance<sup>104</sup> deemed relevant to the Proposed Development should be considered in the next phase of the EIA process.

### Construction and Decommissioning

9.5.7 During the construction and decommissioning phases of the Proposed Development, there is potential for significant effects related to climate change. As decommissioning activities are expected to be similar to those undertaken during construction, these phases have been assessed together in this scoping report. Based on the information available to date, the following significant physical climate effects may affect the Proposed Development's resilience to climate change during this phase:

- Future increases in extreme heat can cause heat stress and exacerbation of the severity of wildfires in greenfield locations, potentially leading to damage to temporary construction and decommissioning sites, health and safety risk to workers and delays in Proposed Development timelines;
- The Proposed Development is located in a high-risk flood zone and increased frequency and intensity of extreme rainfall due to climate change may lead to pluvial and river flooding, potentially

leading to damage of temporary construction and decommissioning sites, access restrictions and delays in Proposed Development timelines;

- Increasing water stress in future may reduce water availability at the Site, which could lead to construction and decommissioning Proposed Development delays; and
- Extreme winds could cause damage to temporary construction and decommissioning structures, leading to health and safety risks to workers on Site.

## **Operation**

9.5.8 In the operation phase of the Proposed Development, the following significant physical climate effects may affect the Proposed Development's resilience to climate change during this phase:

- Future increases in extreme heat can cause heat stress and exacerbation of the severity of wildfires in greenfield locations, potentially leading to damage of solar and road infrastructure, delays to maintenance work and operational requirements and greater demand for cooling;
- While the Proposed Development is predominately located in Flood Zone 1 (low risk of flooding), the Site includes pockets of Flood Zone 2 (medium risk of flooding) and Flood Zone 3 (high risk of flooding) across HG2. Climate change can increase the frequency and intensity of flooding, especially due to extreme rainfall. This may drive pluvial and river flooding, potentially leading to land subsidence, structural damage, and drainage system failures;
- Increasing water stress in future may reduce water availability at the Site, which could lead to shrink/swell of soil and destabilisation of solar assets; and
- Extreme winds could cause damage to solar infrastructure and power distribution systems leading to increase maintenance operational costs.

9.5.9 These effects have informed which climate hazards have been scoped in or out of the assessment and accompanied by a more detailed rationale for inclusion, which is outlined in **Table 9.4** in Section 9.5.

## Mitigation

9.5.10 Mitigation measures will be incorporated into the design process and construction of the Proposed Development through the following channels:

- Construction Environmental Management Plan (CEMP);
- Drainage design standards and water sensitive urban design guidelines;
- Surface Water Drainage Strategy; and
- Structural engineering standards for wind loading and geotechnical design.

## ICCI

9.5.11 As outlined in Section 9.3, the ICCI Assessment inclusion in the EIA and scoping extent will be determined once this scoping report is finalized and confirmed. If included, the significant effects of the Proposed Development's combined climate impacts will be examined in the next EIA phase.

## 9.6 PROPOSED SCOPE OF THE EIA

### Greenhouse Gases

9.6.2 **Table 9.3** sets out the elements of the Greenhouse Gas Assessment which have been proposed to be scoped in to and out of the EIA.

**Table 9.3 Elements of the Greenhouse Gas Assessment Proposed to be Scoped In to and Out of the EIA**

Potential Effect/Topic	Scope	Rationale
<b>Construction Phase</b>		
Site preparation	Scoped In	Identified as source of emissions for the Proposed Development.
Civils works	Scoped In	Identified as source of emissions for the Proposed Development.
Construction of panels and associated infrastructure (i.e. cable routes)	Scoped In	Identified as source of emissions for the Proposed Development. Assessment will be based on high-level design data.

Potential Effect/Topic	Scope	Rationale
<b>Operational Phase</b>		
Operation including maintenance and repair	Scoped In	Identified as source of emissions for the Proposed Development.
<b>Decommissioning Phase</b>		
Decommissioning including removal of equipment and restoration	Scoped In	Identified as source of emissions for the Proposed Development.

## Climate Change

- 9.6.3 Both the CCRR and the ICCI have been scoped into the ES. The scoping process for the CCRR identified climate hazards that may result in significant effects to the Proposed Development, despite the embedded mitigation measures. The combined impact of the Proposed Development and the effects of climate change on sensitive receptors identified in other topic chapters of the EIA will be assessed and therefore, the exact scope of the ICCI assessment will be determined following receipt of further information required (outlined in Section 9.3).
- 9.6.4 **Tables 9.4** and **9.5** set out the elements of the CCRR which have been proposed to be scoped in and out of the EIA at this stage. The climate hazards considered here are not exhaustive and there is potential to include additional relevant hazards as per industry best practice upon review of the future climate projections in the next phase of the EIA process.

**Table 9.4 Climate Hazards Proposed to be Scoped In to the CCRR**

Climate Hazard	Scoped In/Out	Rationale
<b>Temperature Related</b>		
Extreme heat	Scoped In	Increased temperatures and prolonged warm spells are anticipated to occur within the Site and overall annual warming in the UK <sup>105</sup> . Trends in acute extreme heat events (i.e. heat waves)

Climate Hazard	Scoped In/Out	Rationale
		chronic temperature change (i.e. inter-annual temperature variability), may lead to heat stress of materials and structures alongside adverse effects on surrounding environmental receptors and site personnel.
Wildfires	Scoped In	The Proposed Development is cultivated and open land, with small pockets of woodland and trees. As temperatures rise, wildfire risk may increase. However, this risk is dependent on a number of climate parameters and should be taken forward to resilience review.
<b>Water Related</b>		
Extreme rainfall	Scoped In	Extreme rainfall events are anticipated to increase in both frequency and intensity as a result of climate change and Met Office projections show a pattern of larger increases in winter precipitation over southern and central England and some coastal regions towards the end of the century <sup>106</sup> . The Proposed Development may be vulnerable to changes in precipitation, for example, land subsidence and damage to structures and drainage systems during periods of heavy rainfall.
Pluvial flooding	Scoped In	Increased extreme rainfall may result in increased pluvial flooding. As the frequency of flooding events and inundation depths associated with such flooding events increase, the risk of asset related damage becomes greater.
Fluvial flooding	Scoped In	The Proposed Development is located in an area that is in part considered to be an area of a high risk of flooding from rivers flood risk by the EA. Climate change may exacerbate this risk and should be scoped in..
Water stress and drought	Scoped In	The Site lies on land with low risk of water stress but is projected to become a medium-high water stress area by 2050 under the SSP126 (optimistic) climate projection.

Climate Hazard	Scoped In/Out	Rationale
<b>Wind Related</b>		
Extreme winds	Scoped In	The Proposed Development may be vulnerable to changing wind patterns, for example, high winds and falling trees could damage structures and assets. UK Climate Projections show an increase in mean wind speed in winter by the late 21st century and an increase in windstorm number and intensity over the UK <sup>107</sup> .

**Table 9.5 Climate Hazards Proposed to be Scoped Out of the CCRR**

Climate Hazard	Scoped In/Out	Rationale
<b>Water Related</b>		
Sea level rise	Scoped Out	The Proposed Development is not located in an area that is susceptible to sea level rise, with the Site located approximately 20.5 km from the coast at an elevation of approximately 75.7 m.
Coastal flooding	Scoped Out	The Proposed Development is not located in an area that is susceptible to coastal flooding with the Site located approximately 20.5 km from the coast at an elevation of approximately 75.7 m.

## 9.7 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTIES

### 9.7.1 Assumptions and limitations of the climate change and GHG assessment include:

- Where detailed information is not available regarding energy use, assumptions will be made based on industry approximations and professional good practice;
- All assumptions and limitations, including any exclusions, together with assumptions for choices and criteria leading to exclusion of input and output data will be documented as part of the assessment;

- All physical climate change related assessments will be carried out as a qualitative desk-based study;
- This is a high-level assessment that represents the potential level of climate risk and requires further assessment at a local level to validate the level of risk for specific business segments;
- This assessment uses modelled global climate hazard datasets and may not be fully representative of the local hazard conditions;
- The site level assessment of physical risk results data is only collected from a single point location per site, not considering the surrounding area. For highly localised hazards (e.g. flooding) this can sometimes produce a lower-than-expected risk score as even though the exact site location may not have a flooding result, the surrounding area may have projected flooding results, which would impact an asset. Where this is the case, narrative commentary on impacts in the surrounding area is captured within the narrative of the report; and
- The physical risk results follow the standard approach used by the main climate risk models, whereby the results are specific to each climate hazard and do not consider risk interconnectivity (e.g. between extreme heat and wildfires), each hazard is analysed separately.

## 10. CULTURAL HERITAGE AND ARCHAEOLOGY

### 10.1 INTRODUCTION

- 10.1.1 This chapter outlines the scope of the cultural heritage assessment for the Proposed Development. It provides a summary of legislation, policy and guidance, an overview of baseline conditions, likely effects and mitigation and a summary of the proposed EIA methodology. The potential effects of the Proposed Development have been identified through a technical review of the current design, construction, operational (including maintenance), and decommissioning aspects of the Proposed Development.
- 10.1.2 It will also outline the proposed approach to the technical scope of this chapter in the EIA and determine the specific elements that are scoped in and out of each assessment, aligning with the requirements of the EIA regulations.
- 10.1.3 The cultural heritage assessment will consider direct physical impacts, indirect physical impacts, setting impacts and cumulative impacts upon cultural heritage.

### 10.2 TOPIC-SPECIFIC LEGISLATION, POLICY AND GUIDANCE

#### Legislation

- 10.2.2 This section identifies the relevant legislation, planning policy and guidance that underpin the scoping of the EIA. This is inclusive of national legislation as well as local policy and guidance relating to Cultural Heritage. The following legislation, policy and guidance has been considered when preparing this Scoping Report.

#### **The Infrastructure Planning (Decisions) Regulations 2010**

- 10.2.3 The Infrastructure Planning (Decisions) Regulations 2010 provide for Listed buildings, Conservation Areas and Scheduled Monuments as regards the determination of DCO applications. The duties imposed upon the decision-maker in respect of such assets are provided under Regulation 3, as follows:
- When deciding an application which affects a listed building or its setting, the decision-maker... must have regard to the desirability of preserving the listed building or its setting or any features of special architectural or historic interest which it possesses;

- When deciding an application relating to a conservation area, the decision-maker must have regard to the desirability of preserving or enhancing the character or appearance of that area; and
- When deciding an application for development consent which affects or is likely to affect a scheduled monument or its setting, the decision-maker must have regard to the desirability of preserving the scheduled monument or its setting.

10.2.4 These duties effectively replicate those provided within The Planning (Listed Buildings and Conservation Areas) Act (1990) and The Ancient Monuments and Archaeological Areas Act (1979). The one material difference is that, unlike the 1979 Act, Regulation 3(3) of the 2010 Regulations also provides for the setting of Scheduled Monuments.

## **National Planning Policy**

### ***National Policy Statements (NPS) for Energy Infrastructure (2024)*<sup>108</sup>**

10.2.5 The NPSs for energy infrastructure outline the government's policy for delivering major energy infrastructure. The 2023 revised NPSs (EN-1 to EN-5) came into force in January 2024.

10.2.6 The NPSs provide the primary policy against which the examining authority/Planning Inspector will determine NSIPs in England and Wales (including territorial waters and wider UK Renewable Energy Zones). Overarching NPS EN-1 is supported by Technical NPSs EN-2 to EN-6, of which EN-3 ('Renewable Energy Infrastructure')<sup>109</sup> and EN-5 ('Electricity Networks Infrastructure')<sup>110</sup> are of relevance to the Proposed Development.

### ***National Planning Policy Framework (NPPF) (Section 16 - Conserving and enhancing the historic environment (2024))*<sup>111</sup>**

10.2.7 This section of the NPPF outlines policies for conserving and enhancing heritage assets. It emphasises the importance of sustaining and enhancing the significance of heritage assets, considering their wider social, cultural, economic, and environmental benefits.

## **Local Planning Policy**

10.2.8 Historic environment will be conserved in accordance with the following policies as set out in the Uttlesford Local Plan Adopted (2005)<sup>112</sup>:

- Policy ENV1 - Design of Development within Conservation Areas - *"Development will be permitted where it preserves or enhances the character and appearance of the essential features of a Conservation Area, including plan form, relationship between buildings, the arrangement of open areas and their enclosure, grain or significant natural or heritage features."*;
- Policy ENV2- Development affecting Listed Buildings - *"Development affecting a listed building should be in keeping with its scale, character and surroundings. Demolition of a listed building, or development proposals that adversely affect the setting, and alterations that impair the special characteristics of a listed building will not be permitted."*; and
- Policy ENV4 Ancient Monuments and Sites of Archaeological Importance - *"Where nationally important archaeological remains, whether scheduled or not, and their settings, are affected by proposed development there will be a presumption in favour of their physical preservation in situ. The preservation in situ of locally important archaeological remains will be sought unless the need for the development outweighs the importance of the archaeology"*.

10.2.9 Additional regard has also been given to the following local policy in preparing this Scoping Report:

- Uttlesford Local Heritage List (2021)<sup>113</sup>; and
- Braintree District Local Plan 2033 (2021).<sup>114</sup>

## Guidance

10.2.10 Regard has been had to the following guidance in preparing this Scoping Report:

- Historic Environment Good Practice Advice in Planning 2: Managing Significance in Decision-Taking in the Historic Environment (Historic England 2015)<sup>115</sup>;
- The Setting of Heritage Assets (Historic England 2017);<sup>116</sup> and
- Statements of Heritage Significance (Historic England 2019).<sup>117</sup>

## 10.3 PRELIMINARY BASELINE CONDITIONS

### Data Sources

10.3.2 The following key data sources have been used to inform this Scoping Report:

- Historic England (HE) (National Heritage List) for information on designated heritage assets, including World Heritage Sites, Scheduled Monuments, Listed Buildings, Registered Parks and Gardens, and Historic Battlefields;
- the Local Authority's Historic Environment Record (HER), for sites, events and Historic Landscape Characterisation (HLC) data;
- Heritage Gateway online webmap resource for supplementary information on non-designated heritage assets;
- readily accessible published sources, historic mapping and grey literature (e.g. previous investigation reports) for information on non-designated heritage assets;
- the local authority's website for information on Conservation Areas;
- the results of a site walkover; and
- the results of two previously undertaken geophysical surveys (see **Appendix B**).

10.3.3 Additional data sources that will be used to inform the ES Chapter comprise:

- Historic mapping, including large-scale county surveys, enclosure mapping, tithe mapping and early Ordnance Survey editions;
- The results of a geophysical survey of those areas of the Site that have not already been surveyed;
- The results of any further field evaluation that might be requested by heritage consultees;
- The Environment Agency's library of open access LiDAR data (DTM and DSM);
- HE's Aerial Archaeology Mapping Explorer;
- HE's Aerial Photograph Explorer, for historic vertical and oblique aerial imagery;
- Google Earth timelapse satellite imagery;
- Archival material from the county Records Office/Archives;

- The Local Planning Authority's online planning application portal, for relevant documentation submitted in relation to proximate applications;
- Grey literature relating to excavations within, and within proximity to, the Site; and
- Other relevant sources, including the British Geological Survey's online geological mapping, and Cranfield University's soil mapping.

### **Proposed Study Areas**

- 10.3.4 In order to inform our understanding of the Site's archaeological potential and enable an assessment of potential setting impacts and cumulative impacts on heritage assets outside the Site, the following study areas will be used:
- A Site Study Area, inclusive of land within the Site Boundary;
  - a 1 km Study Area, as measured from the Site Boundary; and
  - a 3 km Study Area, as measured from the Site Boundary.
- 10.3.5 The Site and 1 km Study Areas will be used to help inform our understanding of the Site's archaeological potential through provision of context. The 3 km Study Area will be used to identify potential setting impacts to designated heritage assets, as well as any sensitive non-designated assets identified through consultation with Uttlesford Council (UC).
- 10.3.6 The Site Study Areas focuses on the Site (HG1-HG3) and Cable Corridor Options, and will be assessed separately by considering cultural heritage potential within each individual section.

### **Preliminary Baseline Conditions**

- 10.3.7 A comprehensive list of designated and non-designated assets within the Site Boundary and the 3 km Study Area is available in **Appendix E** of this Scoping Report. A summary of the assets located within the Site Boundary and 3 km Study Area is available below.

### **Designated Assets Within the 3 km Study Area**

- 10.3.8 Within the 3 km Study Area, there are 359 designated assets consisting of:
- Three Scheduled Monuments;
  - Five Conservation Areas; and

- 351 Listed Buildings (11 of which are Grade I and 11 of which are Grade II\* Listed).

10.3.9 **Figures 10.1 to 10.4** illustrate the cultural heritage assets located within the 3 km Study Area and sections HG1-3.

### ***Scheduled Monuments***

10.3.10 Scheduled Monuments within 3 km of the Site comprise three medieval assets (SM1002143, SM1008701, SM1013148). These are located to the northwest and south of the Proposed Development. Leez Augustinian Priory, fishponds and Tudor mansion (SM1013148) is located approximately 1.2 km south of Site and comprises a monastic site dating to c.1200. The building was one of 11 Augustinian houses in Essex and was throughout its life a large and important house.

### ***Listed Buildings***

10.3.11 Grade I Listed Gatehouse Farmhouse (LB1112849), located circa 250 m northeast of the Site, dates to circa AD 1300 and is of likely monastic origin. The Grade I and Grade II\* Listed buildings are mainly clustered around settlements such as Felsted and Rayne. Of the remaining Grade II Listed buildings, most date to the medieval - post-medieval periods, and comprise farmhouses, associated outbuildings and dwellings as well as churches and schools. Again, these are primarily focused around the settlements at Rayne, Bannister Green, Gransmore Green and Molehill Green. Few are earlier than 16<sup>th</sup> century in date.

### ***Conservation Areas***

10.3.12 Of the five Conservation Areas within 3 km of the Site, the closest are Felsted (5874) and Rayne (1110). Felsted is a village located to the southwest of Site. The village is partly medieval in origin and was later developed by Lord Richard Rich who founded Felsted School in 1564. The Conservation Area encompasses the school (LB1112889) and church (LB1112864) as well as the village green and contains 50 Listed Buildings grouped along Station Road, Chelmsford Road and Braintree Road.

10.3.13 Rayne is a small town located to the northwest of Site. The Conservation Area encompasses the Roman Road 'Stane Street' now named 'The Street' as well as Grade I Listed All Saints Church

(1308377). Although Rayne does have links to the prehistoric and Roman periods, it is most notable for its medieval and post-medieval history. The arrival of the railway in 1869 enabled trade and transport to London, whilst providing the catalyst for the expansion of industrial activity at Rayne Foundry. The Filtch Way runs west from Rayne, skirting the northern boundary of the Site.

## **Within the Cable Corridor Options**

### ***Assets Within Cable Option 1***

10.3.14 Within Cable Option 1, there are 11 designated assets, all of which comprise Listed buildings. All are Grade II, with the exception of Grade II\* Listed Card's House (1122806), which dates to the 16-17th century. Within Cable Option 1 there are 29 non-designated assets.

### ***Assets Within Cable Option 2***

10.3.15 Within Cable Option 2, there are 27 designated assets, all of which comprise Listed buildings. All are Grade II, with the exception of Grade II\* Listed Card's House (1122806) which dates to the 16-17th century. Within Cable Option 2 there are 21 non-designated assets.

### ***Assets Within Cable Option 3***

10.3.16 Within Cable Option 3, there are 29 designated assets comprised of 28 Listed Buildings and one Scheduled Monument. All Listed Buildings are Grade II listed, with the exception of the Grade II\* Listed Church of St Peter and St Paul (1147111), which dates to the 12th Century. The Scheduled Monument, Moated site and two fishponds at Black Notley churchyard (1013763) dates to the 16th century. Within Cable Option 3 there are 28 non-designated assets.

### ***Assets Within Cable Option 4***

10.3.17 Within Cable Route 4, there are 32 designated assets, all of which comprise Listed buildings. All are Grade II Listed, with the exception of Grade II\* Listed Card's House (1122806), which dates to the 16-17th century. Within Cable Option 4 there are 25 non-designated assets.

## 10.4 TECHNICAL SCOPE AND APPROACH TO EIA

### Assessment Of Heritage Significance

- 10.4.2 Heritage assets will be assessed in terms of their significance, following the requirement in EN-1 section 5.9.10, and taking account of HE's guidance on 'Managing Significance in Decision-Taking in the Historic Environment' (GPA2)<sup>118</sup>.
- 10.4.3 Significance, in relation to heritage policy, is defined in the NPPF as *"the value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting."*
- 10.4.4 In accordance with EN-1, the level of significance attributed to heritage assets will be articulated as follows:
- Designated heritage assets of the highest significance, as identified in section 5.9.30 of EN-1, comprising Grade I and II\* Listed buildings, Grade I and II\* Registered Parks and Gardens, Scheduled Monuments, Protected Wreck Sites, World Heritage Sites and Registered Battlefields (and also including some Conservation Areas) and non-designated heritage assets of archaeological interest which are demonstrably of equivalent significance to Scheduled Monuments, as identified in section 5.9.6 of EN-1 (2023);
  - Designated heritage assets of less than the highest significance, as identified in section 5.9.30 of EN-1, comprising Grade II Listed buildings and Grade II Registered Parks and Gardens (and also some Conservation Areas); and
  - Non-designated heritage assets, as defined by Historic England<sup>119</sup> as *"buildings, monuments, sites, places, areas or landscapes identified by plan-making bodies as having a degree of significance meriting consideration in planning decisions, but which do not meet the criteria for designated heritage assets"*.

### Assessment of Magnitude of Impact

- 10.4.5 Magnitude of impact is the predicted degree of change to the existing baseline environment during and/or following the construction of the Proposed Development. The methodology for predicting the degree of change that will be employed in this assessment moves away from

the more traditional 'scalar', matrix-led approach. It instead adopts a descriptive, qualitative presentation of the changes to heritage significance that are predicted as a result of the Proposed Development, which directly reflects key concepts in current planning policy and heritage guidance and allows for a less constrained assessment of effects.

## 10.5 POTENTIAL SIGNIFICANT EFFECTS AND MITIGATION

### Assessment of Impacts

10.5.2 The following potential impacts on cultural heritage and archaeology receptors may result from the Proposed Development without appropriate mitigation; these will be considered within the EIA:

- Direct physical impacts;
- Indirect physical impacts;
- Setting impacts; and
- Cumulative impacts.

### ***Direct/Indirect Physical Impacts***

10.5.3 Assets located within the Site Boundary are susceptible to direct and potentially indirect impact, as a result of the Proposed Development.

10.5.4 Direct and/or indirect physical impacts would not be anticipated to occur wholesale across the full extent of the Site, but are expected to be limited to areas of ground disturbance associated with construction and/or landscaping. As such, the occurrence of these types of impacts is typically limited to the construction phase of any development.

10.5.5 Direct physical impacts are physical alterations, e.g. truncation, removal, structural damage etc., which may affect either known or potential or unrecorded assets, both buried and above ground. These impacts are usually permanent and irreversible.

10.5.6 Indirect physical impacts are physical alterations occurring as a result of construction and associated activity, but not from direct physical contact between plant machinery and other forms of construction personnel or equipment. Instead, they result from, for example, vibration caused by the movement of plant machinery, delivery vehicles etc., harmful desiccation or saturation of assets due to

changes in groundwater level as a result of groundworks elsewhere, and other remote construction activities.

10.5.7 There is the potential for direct/indirect physical impacts upon the following:

- Designated cultural heritage assets located within the Cable Corridor Options, including:
  - Non-designated cultural heritage assets located within the Site Boundary including the Cable Corridor Options; and
  - Any buried archaeological features identified within the Site by geophysical survey.

10.5.8 A comprehensive list of assets will be provided within the Cultural Heritage chapter of the ES.

10.5.9 Given the Site layout as currently proposed, any direct / indirect physical impacts within HG1, HG2 and HG3 and along the course of the Cable Corridor Options would not be anticipated to be significant, assuming suitable mitigation measures are put in place (discussed further Section 10.4), and secured by DCO requirement; specifically via the detail presented in the layout plans approved under the DCO and any associated management plans that might be requested by consultees/mandated by condition.

10.5.10 The Cable Corridor Options include a number of designated heritage assets. These would all be avoided by the proposed infrastructure, as per the statutory requirement, preserved in situ and protected from any physical impact via the detail presented in the layout plans approved under the DCO and any associated management plans that might be requested by consultees or mandated by condition.

### ***Settings Impacts***

10.5.11 While some temporary setting impact may result during construction, setting impacts are considered to derive primarily from the operational phase of the Proposed Development. This is due to setting impacts having their greatest visual and aesthetic impact following the completion of all above ground infrastructure. As such, for purposes of the EIA Chapter, impacts resulting from change to setting will be considered operational.

- 10.5.12 There is a potential for setting impacts to occur in relation to both designated and, to a lesser extent, significant non-designated heritage assets located within the 3 km Study Area.
- 10.5.13 At this stage, there is considered to be the potential for setting impacts upon a small number of designated heritage assets to be significant, in the absence of any design mitigation measures.
- 10.5.14 No significant setting impacts are anticipated in relation to non-designated heritage assets at this stage.

### **Setting Assessment**

- 10.5.15 Harm to the significance of any heritage assets as a result of change to setting will be undertaken in accordance with HE's *The Setting of Heritage Assets* (2017), which comprises the key industry guidance on heritage setting assessment.
- 10.5.16 To aid in the assessment of any setting impacts, reference will be made to the extent of the potential visual changes in setting as determined through the use of a bare earth ZTV and Landscape and Visual Impact Assessment (LVIA) viewpoints.
- 10.5.17 A sieving exercise will also be used to determine which heritage assets are to be included within the final setting assessment. For inclusion, assets will need to meet the following criteria:
- They must lie within the bare earth ZTV;
  - They must share intervisibility or a material non-visual association with the Proposed Development; and
  - They must derive part of their significance from their setting, as per the relevant policy and guidance.

### **Assessment of Significance of Effect**

- 10.5.18 Where any impacts are identified, a statement of whether they would be considered Significant or Not Significant for purposes of EIA will be provided, along with justification. Professional judgment will be used in making this determination, based upon the significance of the assets and the magnitude of any impact.

### **Mitigation**

- 10.5.19 Known archaeology, as identified within the historic and archaeological baseline, will be avoided during the Proposed

Development's design process, where possible, within the limits of other on-site constraints.

- 10.5.20 Where it is not possible to avoid impacts, consultation will be undertaken with the LPA Archaeology Officer and, if required, Historic England, to formulate a suitable mitigation strategy. Any mitigation strategy would aim to reduce the magnitude of any identified effects through archaeological recording in advance of or during construction.
- 10.5.21 Mitigation may include archaeological excavation, watching brief, historic building recording and historic landscape recording and the dissemination of the results of these works. The agreed scope, methodology and timing of any mitigation works would be formalised within a Written Scheme of Investigation (WSI), approved by the Archaeology Officer. Conformance with the WSI would be secured by an appropriate DCO requirement.
- 10.5.22 Historic England have been consulted at this stage and no major concerns were raised. Further consultation may be required at a later stage should there be any changes to the Proposed Development design in the future.

## 10.6 PROPOSED SCOPE OF THE EIA

- 10.6.1 On the basis of the sensitivities described above, the potential effects proposed to be scoped into or out of the EIA for this topic are presented in **Tables 10.1** and **10.2**.

**Table 10.1 Elements of the Cultural Heritage and Archaeology Assessment Proposed to be Scoped in to the EIA**

Environmental Receptor, Assessment or Effect	Scope	Rationale
Direct Physical Impacts to Heritage Assets within the Site (excluding the Cable Corridor Options).	Scoped In.	Direct physical impacts to heritage assets as a result of the Proposed Development are considered possible and might have a significant impact.
Direct Physical Impacts to Heritage Assets within the Cable Corridor Options.	Scoped In.	Direct physical impacts to heritage assets as a result of the Proposed Development are

Environmental Receptor, Assessment or Effect	Scope	Rationale
		considered possible and might have a significant impact.
Indirect Physical Impacts to Heritage Assets within and immediately adjacent to the Site.	Scoped In.	Indirect physical impacts to heritage assets as a result of the Proposed Development are considered possible, albeit these would be considered unlikely to result in significant impact.
Setting Impacts to designated assets (and any non-designated heritage assets of equivalent significance) within the 3 km Study Area.	Scoped In.	Assets beyond 3 km may also be scoped in if: <ul style="list-style-type: none"> <li>• They fall within the bare earth ZTV;</li> <li>• They have been requested for assessment by stakeholders; and/or</li> <li>• They have the potential to be impacted by the Proposed Development.</li> </ul>
The cumulative effect of the Proposed Development in conjunction with other developments within 3 km.	Scoped In.	Additional developments beyond 3 km may be included for assessment where: <ul style="list-style-type: none"> <li>• Bare earth ZTVs overlap;</li> <li>• They have been requested for assessment by stakeholders; and/or,</li> <li>• They have the potential to impact the setting of assets in conjunction with the Proposed Development.</li> </ul>

**Table 10.2 Elements of the Cultural Heritage and Archaeology Assessment Proposed to be Scoped Out of the EIA**

<b>Environmental Receptor, Assessment or Effect</b>	<b>Scope</b>	<b>Rationale</b>
Assessment of the direct physical impacts to heritage assets outside the Site.	Scoped Out.	Significant, direct physical impacts to such heritage assets are not anticipated to occur. This is due to no groundbreaking activities taking place outside the Site boundary and chosen Cable Option.
Indirect physical impacts to heritage assets outside the Site and its immediate vicinity.	Scoped Out.	Significant, indirect physical impacts to such heritage assets are not anticipated to occur.
Setting impacts to non-designated heritage assets.	Scoped Out.	Significant setting impacts to such non-designated heritage assets are not anticipated to occur.
Temporary settings impacts to designated and non-designated heritage assets as a result of the operation and decommissioning of the underground cable (if decommissioned).	Scoped out.	Temporary setting impacts are not expected to extend beyond the construction phase.

## 10.7 ASSUMPTIONS, LIMITATION AND UNCERTAINTIES

### 10.7.1 Key limitations to the EIA are anticipated to be as follows:

- The information provided in LPA datasets and other secondary sources may be inaccurate or incomplete, thereby not a complete record of the historic environment. Also, this does not preclude the potential for hitherto unidentified archaeological remains or deposits to be encountered within the Site.
- Undertaking the walkover survey and geophysical survey does not preclude the possibility that additional subsurface archaeological remains survive within the Proposed Development; and
- The bare earth ZTV and supporting visualisations used to support the assessment of Indirect Effects to Setting are assumed to be

accurate and to accurately reflect the visual presence of the Proposed Development in the surrounding landscape.

## 11. GROUND CONDITIONS AND LAND QUALITY

### 11.1 INTRODUCTION

- 11.1.1 This chapter outlines the scope of the ground conditions and land quality assessment for the Proposed Development. It identifies the baseline conditions, assessment methodology, potential effects from construction, operation (including maintenance), and decommissioning activities, and potential mitigation measures for soils, geology, hydrogeology, and contamination in relation to the Proposed Development.
- 11.1.2 It will also outline the proposed approach to the technical scope of this chapter in the EIA and determine the specific elements that are scoped in and out of each assessment, aligning with the requirements of the EIA regulations.
- 11.1.3 The potential effects of the Proposed Development have been identified through a technical review of the current design, construction, operational, and decommissioning aspects of the Proposed Development and how these may interact with ground conditions and land quality.
- 11.1.4 Potential effects of ground conditions and land quality on ecological receptors, surface water resources and socio-economics are considered in **Chapter 8**, **Chapter 16**, and **Chapter 14** respectively.

### 11.2 TOPIC-SPECIFIC LEGISLATION, POLICY AND GUIDANCE

- 11.2.1 The scope of the Ground Conditions and Land Quality assessment section of the EIA has been developed in line with the following key legislation, policy and associated guidance:

#### Legislation

##### ***The Environmental Protection Act 1990<sup>120</sup>***

- 11.2.2 The Environmental Protection Act (EPA) makes provisions for the improved control of pollution arising from certain industrial and other processes, relating to waste and the collection and disposal of waste. In particular, Part IIA (as created by the Environment Act 1995) focuses on dealing with contaminated land in England.

### ***Groundwater (England and Wales) Regulations 2009<sup>121</sup>***

11.2.3 These regulations implement Article 6 of European Directive 2006/118/EC (Groundwater Directive) with the intention of preventing the entry of 'hazardous substances' into groundwater and the pollution of groundwater by 'non-hazardous' pollutants. Under the regulations, it is an offence to cause or knowingly permit the discharge of a 'hazardous substance' or 'non-hazardous pollutant' into groundwater unless authorised to do so via an Environmental Permit issued by the appropriate regulator.

### ***Water Resources Act 1991 (as amended by the Water Act 2003)<sup>122</sup>***

11.2.4 The Act (as amended) provides the definition of and regulatory controls for the protection of water resources, including the quality standards expected for controlled waters. The broad aims of the act are to ensure sustainable use of water resources, strengthening the voice of consumers, increasing competition and promoting water conservation.

## **Policy**

### ***National Policy Statements***

11.2.5 National Policy Statements (NPS) are the primary policy basis for Nationally Significant Infrastructure Project (NSIP) development. The following NPSs are relevant to the Proposed Development in the context of ground conditions and land quality:

- Overarching NPS for Energy (EN-1)<sup>123</sup>, which includes controls on developments resulting in potential discharges affecting water or land quality and resulting effects to the environment or human health. The policy also details the importance of geological conservation, as well as potential effects on groundwater quality and resource value during construction or operation of developments;
- NPS for Renewable Energy Infrastructure (EN-3)<sup>124</sup>, which details controls on development on agricultural land, and the avoidance, where practicable, of development on Best and Most Versatile (BMV) agricultural land, as well as the importance of Soil Management Plans (SMPs) to promote sustainable soil management and to minimise impacts on soil health and potential land contamination; and

- NPS for Electricity Networks Infrastructure (EN-5)<sup>125</sup> sets out considerations to be made during siting and design of Proposed Developments in relation to climate change resilience, including potential effects of higher groundwater levels resulting in groundwater flooding, particularly for vital infrastructure such as substations.

### **National Planning Policy Framework 2024<sup>126</sup>**

- 11.2.6 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England, and how they are expected to be applied. It has an overall aim of making effective use of land, including chapter 15 (Conserving and enhancing the natural environment) and chapter 17 (Facilitating the sustainable use of minerals) of the NPPF which include aspects around geology, minerals and land contamination.
- 11.2.7 Government planning policy on land contamination aims to prevent new contaminated land from being created and promotes a risk-based approach to addressing historical contamination. With regards to historical contamination, regulatory intervention is held in reserve for land that meets the legal definition of 'contaminated land' and poses an unacceptable risk that cannot be dealt with through any other means, including through planning.

### **Local Planning Policy**

- 11.2.8 The Uttlesford Local Plan<sup>127</sup> (adopted 2005) includes, amongst other things, objectives to "*protect ground [...] water resources from contamination and over-abstraction*" and "*protect the natural environmental for its own sake, particularly for its [...] and agricultural [...] qualities*". Specific policies relevant to ground conditions and land quality include:

- Policy ENV5 (Protection of Agricultural Land) restricts the numbers and types of development permitted on agricultural land, particularly BMV agricultural land;
- Policy ENV7 (Protection of the Natural Environment) places restriction on developments which are likely to affect Regionally Important Geological/Geomorphological Sites;
- Policy ENV12 (Protection of Water Resources) places restrictions on developments that would be liable to cause contamination of

groundwater, particularly in protection zones, unless effective safeguards are provided; and

- Policy ENV14 (Contaminated Land) requires investigation, risk assessment and remediation to be carried out on sites which are known or suspected to be contaminated.

11.2.9 The emerging Uttlesford Local Plan 2021 – 2041<sup>128</sup> includes the following updated policies in relation to ground conditions and land quality:

- Core Policy 25 (Renewable Energy Infrastructure) requires adverse impacts, including cumulative adverse impacts, to be satisfactorily addressed on BMV agricultural land;
- Core Policy 28 (The Natural Environment) demonstrates how the local authority will only support development proposals where they protect and enhance designated and non-designated sites of geological value;
- Core Policy 34 (Water Supply and Protection of Water Resources) provides for the sustainable use of water supply, including no reduction on groundwater levels (or levels of groundwater-fed surface water bodies) or contamination of groundwater resources; and
- Core Policy 42 (Pollution and Contamination) states that permission will only be granted for development where there will be no adverse impact on the quality of local groundwater, or no threat to the health of future users of occupiers of the site or neighbouring land.

11.2.10 Braintree District Council's Braintree District Development Plan<sup>129</sup> sets out local planning policies, including in relation to ground conditions and land quality. The following elements of the plan are considered relevant to this topic:

- Local Plan 2013 – 2033<sup>130</sup>, which contains aspects on:
  - Biodiversity, Landscape Character & Agriculture, which outlines the local policy to "*protect and enhance sites that are locally and/or nationally designated for the importance to [...] geological value, as well as non-designated sites of [...] geological value*". Policy LPP64 provides for mitigation of potential impacts resulting from development on or close to internationally, nationally or locally designated sites; and

- Land, Air and Water Quality outlines the local policy for, amongst other things, dealing with contaminated sites, protecting groundwater resources and prevention of development in source protection areas. Policy LPP70 provides for the “*prevention of unacceptable risks from emissions and other forms of pollution*” and to “*ensure no deterioration to [...] water quality*”.
- Essex Minerals Local Plan<sup>131</sup>, which contains planning policy for minerals development (principally sand and gravel extraction) in Essex until 2029, giving certainty over future minerals development through the safeguarding of mineral resources and site allocations.

## Guidance

### ***Land Contamination Risk Management (LCRM) 2020***<sup>132</sup>

11.2.11 The purpose of the UK’s Land Contamination Risk Management (LCRM) guidance is to provide a framework for dealing with land contamination in a way that is consistent with relevant legislation. It provides guidance on the approach to the assessment and remediation of land contaminated by means of risk assessment, options appraisal, remediation and verification.

### ***A New Perspective on Land and Soil in Environmental Impact Assessment, 2022***<sup>133</sup>

11.2.12 This guidance sets out the approach to the assessment of effects on land and soil, considering soil functions, soil biodiversity, soil health, ecosystem services and natural capital and promotes the consideration of natural, undisturbed soils.

11.2.13 Where a potentially significant impact on soils is anticipated, the approach should include an Agricultural Land Classification (ALC) survey to appropriately identify the agricultural land quality based on soil, site and climatic conditions.

## 11.3 PRELIMINARY BASELINE CONDITIONS

### Data Sources

11.3.2 The ES will present more detailed information on the ground conditions and land quality of the Proposed Development, including site-specific data obtained from an environmental database

(Landmark Envirocheck® Report) and data held by the applicant/landowners once the Site Boundary and Cable Corridor Options have been further refined.

11.3.3 The following sections in this Scoping Report are based on a preliminary review of the following data sources:

- British Geological Survey (BGS) GeoIndex Onshore interactive map viewer (accessed January 2025)<sup>134</sup>;
- Department for Environment, Food and Rural Affairs (Defra) Magic online mapping (accessed January 2025)<sup>135</sup>;
- Defra's Historical Landfill Data (accessed January 2025)<sup>136</sup>;
- EA Catchment Data Explorer (accessed January 2025)<sup>137</sup>;
- Essex Minerals Local Plan (adopted July 2014)<sup>131</sup>;
- Natural England Agricultural Land Classification map (Eastern Region, ALC008) (August 2010)<sup>138</sup>;
- Amet Property, Agricultural Land Classification Report - Drapers Solar Farm (September 2022) (available in Appendix B); and
- Amet Property, Agricultural Land Classification Report - Lord Rayleighs Solar Farm (September 2022) (available in **Appendix B**).

### Proposed Study Area

11.3.4 The Study Area for the ground conditions and land quality assessment, will comprise of the land within the Site Boundary and Cable Corridor Options plus a 500 m buffer. This buffer reflects the maximum distance which:

- Effects of the Proposed Development may impact upon with respect to ground conditions and land quality receptors; and
- The baseline environment with respect to ground conditions and land quality may impact upon the Proposed Development.

11.3.5 A buffer of 500 m is consistent with Preliminary Risk Assessments undertaken in line with relevant UK guidance (e.g. LCRM132). A greater buffer may be recommended in some instances, e.g. where large-scale groundwater abstractions are present. However, this is not the case in the vicinity of the Proposed Development (see Section 11.3).

11.3.6 The Study Area for this topic is shown on **Figure 11.1**.

## Key Sensitivities

- 11.3.7 Key sensitivities (receptors) in the context of ground conditions and land quality, which will be considered in the assessment, include:
- BMV agricultural soil within the footprint of the Proposed Development;
  - Mineral resources within the Study Area;
  - Secondary A superficial aquifers underlying the Proposed Development; and
  - Human health (onsite construction / operation workers, and offsite residential / commercial site users).
- 11.3.8 Refinement of receptors requiring assessment will be reviewed during the PEIR as more detailed information is obtained from baseline surveys for this topic and other relevant EIA topics, and where appropriate, in response to stakeholder engagement.

## Baseline Conditions

### Site Land Use

- 11.3.9 The Site is located within a predominantly undeveloped, rural area dominated by agricultural farmland. The area has remained this way to the present day with no record of significant past industrial use or potentially contaminative activities.
- 11.3.10 The River Ter flows in a generally southern direction through HG2.

### Site Soils

- 11.3.11 The soil underlying Site is defined by the National Soil Resources Institute<sup>135</sup> as "*Soilscape 9: Lime-rich loamy and clayey soils with impeded drainage*".
- 11.3.12 Natural England classifies the soils underlying Site as ALC Grade 2 and Grade 3<sup>138</sup>. ALC surveys of HG1 and HG3 were undertaken by Amet Property in 2022 (available in **Appendix B**), which classified soil across these areas as Grade 3a 'Good'. Grade 3a falls within the definition of BMV agricultural soils.

### Site Geology

- 11.3.13 According to BGS mapping and available online borehole records<sup>134</sup>:
- No artificial ground is mapped within the Site;

- Superficial deposits beneath the Site predominantly comprise Lowestoft Formation Till, varying in thickness between approximately 10 m and 16 m. Localised areas of Alluvium are present associated with the River Ter, as well as isolated pockets of Sands and Gravels of fluvial and glacial origin (Kesgrave and Lowestoft Formations); and
- Bedrock deposits beneath the Site comprise London Clay.

11.3.14 The Site is located within a Coal Mining Reporting Area according to Mining Remediation Authority (formerly the Coal Authority) records.

11.3.15 There are no geological SSSIs<sup>135</sup> or LoGS (formerly RIGS)<sup>139</sup> located within the Site or the wider Study Area.

11.3.16 The Essex Minerals Local Plan<sup>131</sup> has identified Broadfield Farm, Rayne, located approximately 400 m to the north of HG1, as a “*Proposed and Reserve Site*” for potential future mineral (sand and gravel) abstraction.

### **Site Hydrogeology**

11.3.17 The Environment Agency (EA) classifies the Lowestoft Formation superficial deposits (Till) as a Secondary Undifferentiated Aquifer, which is a designation assigned in places “*for which it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type*”. The localised Alluvium and Sand and Gravel deposits are classified as Secondary A Aquifers, which are defined as “*permeable layers that can support local water supplies and may form an important source of base flow to rivers*”. Depth to groundwater within the superficial deposits is anticipated to be between 2 m and 10 m below ground level (bgl), based on available borehole records<sup>134</sup>.

11.3.18 The London Clay bedrock is classified by the EA as an Unproductive Aquifer, defined as strata which are “largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them”.

11.3.19 The EA has classified the underlying Essex Gravels Groundwater Body as having ‘Poor’ ecological status.

11.3.20 The majority of the Site is located within a Source Protection Zone (SPZ) III (Total Catchment)<sup>135</sup>. The associated Zones I (Inner Protection) and II (Outer Protection) are outside of the Study Area.

11.3.21 Based on available online EA mapping<sup>140</sup>, no licensed groundwater abstractions are recorded within the Site or the wider Study Area. This will be confirmed later during the PEIR on receipt of further baseline data in the form of an environmental database search and consultation with Essex County Council and the EA.

### ***Potentially Contaminative Land Uses on Site***

11.3.22 The Site is located in a predominantly agricultural area and no significant current or historical potentially contaminative land uses have been identified. This will be confirmed later during the PEIR by undertaking a Phase 1 Environmental Site Assessment (ESA), including review of historical maps and an environmental database.

11.3.23 According to Defra's Historical Landfill Data<sup>136</sup> there are no historic or current recorded landfill sites within the Study Area.

### **Cable Corridor Options**

#### ***Land Use***

11.3.24 The land use within the Cable Corridor Options is predominantly agricultural.

11.3.25 The Cable Corridor Options also skirt the southern side of Great Notley, cross a railway line and utilise roads through the villages of Black Notley and Tye Green.

11.3.26 The River Brain flows through the eastern part of the Cable Corridor Options, north to south.

#### ***Soils***

11.3.27 The soil underlying the Cable Corridor Options is defined by the National Soil Resources Institute<sup>135</sup> as:

- "Soilscape 6: Freely draining slightly acid loamy soils";
- "Soilscape 8: Slightly acid loamy and clayey soils with impeded drainage";
- "Soilscape 9: Lime-rich loamy and clayey soils with impeded drainage"; and
- "Soilscape 18: Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils".

11.3.28 Natural England classifies the soils underlying the area as ALC Grade 2 and Grade 3<sup>138</sup>.

## **Geology**

11.3.29 According to BGS mapping and available online borehole records<sup>134</sup>:

- No artificial ground is mapped within the Cable Corridor Options;
- Superficial deposits within the Cable Corridor Options predominantly comprise Lowestoft Formation Till. Alluvium associated with the River Brain and Sands and Gravels of fluvial origin (Kesgrave Formation) are present towards the east. The thickness of superficial deposits decreases in thickness from approximately 16 m in the west to 10 m in the east; and
- Bedrock deposits beneath the Cable Corridor Options comprise London Clay.

11.3.30 The Cable Corridor Options are not located within a Coal Mining Reporting Area according to Mining Remediation Authority records<sup>141</sup>.

11.3.31 There are no geological SSSIs<sup>135</sup> or LoGS<sup>139</sup> located within the Cable Corridor Options or wider Study Area.

## **Hydrogeology**

11.3.32 The same EA aquifer classifications and ecological status apply to the Site and Cable Corridor Options. See details in Section 11.3.18 above.

11.3.33 Based on available online Environment Agency mapping<sup>142</sup>, no licensed groundwater abstractions are recorded within the Cable Corridor Options.

## **Potentially Contaminative Land Uses**

11.3.34 Identified potentially contaminated land uses within the Cable Corridor Options Study Area comprise:

- A sand and gravel quarry, also recorded as an historic landfill<sup>136</sup>, located immediately south of Blackley Lane (Cable Options 3 and 4); and
- A railway (Braintree Branch Line), crossed by all Cable Corridor Options to the south of Great Notley.

11.3.35 This will be confirmed later during the PEIR by undertaking a Phase 1 Environmental Site Assessment, including review of historical maps and an environmental database.

## 11.4 TECHNICAL SCOPE AND APPROACH TO EIA

### Level of Assessment

11.4.2 The ground conditions and land quality impact assessment will consider potential effects on soils, geology, and groundwater resources and related designated sites and will include the following elements:

- A Phase 1 desk-based ESA will be completed for inclusion in the PEIR, which will identify potential contaminative sources, the presence and nature of potential pathways and receptors (including human receptors, ecological receptors and natural resources such as groundwater and designated sites) to develop a Conceptual Site Model (CSM), comprising:
  - Collation of additional baseline information to allow the CSM to be developed. Site-specific data will be reviewed including a general search of the area using an environmental database (e.g., Landmark Envirocheck® Report, or similar). A targeted walkover of the area may also be undertaken as part of further baseline assessment; and
  - The Envirocheck® Report will include up to date datasets (onsite and within 1 km of the Proposed Development) on the following key areas, which will build on existing knowledge:
    - Historic land use (historical mapping and aerial imagery);
    - Industrial land use and permits for industrial processes;
    - Sensitive land use and designated sites (ecology, hydrology, hydrogeology etc.);
    - Recorded pollution incidents; and
    - Licensed landfill and waste management facilities.
- A supplementary ALC Survey will be completed for inclusion in the PEIR to further classify the value of agricultural soils within HG2 and to confirm the results of the 2022 ALC studies undertaken on HG1 And HG3. A proposed density of one ALC sample per hectare is considered proportionate, subject to approval from Natural England;
- An assessment of potential impacts on existing ground conditions will be undertaken as part of the EIA, including the potential for

the Proposed Development to result in land contamination, as defined in the Environment Act 1995 Part 2A;

- Consultation with ECC and other relevant statutory and non-statutory organisations will be undertaken as necessary. This will include the local Planning Officer and Contaminated Land Officer who can hold pertinent information and local experience of the surrounding area that may not be in the public domain; and
- Further site-specific ground investigation surveys (including a groundwater monitoring regime) for geological/geotechnical assessment are likely to be undertaken by the applicant or their appointed designers during the Pre-FEED (Front-End Engineering Design) and FEED stages of the project. Any pertinent geological, hydrogeological and ground contamination information collected during further ground investigation can be used to inform the baseline, if available.

### Topic Specific Assessment Methodologies

- 11.4.3 Assessment methodologies in relation to ground conditions and land quality will align with LCRM and IEMA guidance (see Section 11.2). The potential impacts for this topic are characterised based on the potential harm to a receptor within a given source-pathway-receptor combination, or a pollutant linkage and graded with a level of magnitude.
- 11.4.4 To evaluate whether the presence of a source of contamination could potentially lead to harmful consequences a source-pathway-receptor methodology is adopted, with the underlying principle that the identification of pollutant linkages consists of the following three elements:
- A source hazard (a substance or situation that has the potential to cause harm or pollution);
  - A pathway (a means by which the hazard moves along); and
  - A receptor/target (an entity that is vulnerable to the potential adverse effects of the hazard).
- 11.4.5 Land contamination may be a hazard but does not constitute a risk unless all three elements are present and therefore create a pollutant linkage. In assessing the potential for contamination to cause a significant effect, the extent and nature of the potential source or

sources of contamination must be assessed, any pathways present must be identified and sensitive receptors or resources identified and appraised. This will result in the determination of their value and sensitivity to contamination related impacts.

- 11.4.6 The same assessment methodology applies for the construction, operational and decommissioning phases. For this topic, the most significant effects will occur during construction of the Proposed Development.

### Determining the Significance of Effects

- 11.4.7 The sensitivity of potential receptors can be described qualitatively according to the categories presented in **Table 11.1**.

**Table 11.1 Receptor Sensitivity**

Sensitivity	Receptor
High.	<ul style="list-style-type: none"> <li>Human health: on-site residential developments, on-site construction workers.</li> <li>Controlled waters (groundwater): Source Protection Zone or highly productive aquifer.</li> <li>Soil resource: Presence of BMV land (Grades 1, 2 or 3a), surface mineral reserves, soils supporting nationally important environmental designated sites, high carbon sequestration soils (e.g. peat), or soils acting as important catchment pathways for water flow and/ or flood management.</li> </ul>
Medium.	<ul style="list-style-type: none"> <li>Human health: on-site commercial developments, off-site residential developments.</li> <li>Controlled waters (groundwater): Moderately productive aquifer.</li> <li>Soil resource: Presence of land of moderate quality (Grade 3b), sites supporting locally important environmental designated sites, moderate carbon sequestration soils (e.g. mineral soils), or soils acting as minor catchment pathways for water flow and/ or flood management.</li> </ul>
Low.	<ul style="list-style-type: none"> <li>Human health: transient or limited access, off-site commercial development.</li> </ul>

Sensitivity	Receptor
	<ul style="list-style-type: none"> <li>Controlled waters (groundwater): Low productivity aquifer or rocks essentially with no groundwater.</li> <li>Soil resource: Presence of land of poor quality (Grade 4) or urban soils.</li> </ul>

11.4.8 The magnitude of impacts will be determined by considering the intensity (or scale), spatial coverage and longevity of an impact. The magnitude assigned will also use professional judgement to take into consideration the application of statutory standards and non-statutory standards or guidelines. The magnitude of impact on the receptors is presented in **Table 11.2**.

**Table 11.2 Magnitude of Impact**

Magnitude	Description	Example
<b>Large.</b>	<ul style="list-style-type: none"> <li>Results in loss of attribute and/or likely to cause exceedance of statutory objectives and/or breach of legislation.</li> <li>High degree of disruption to cultivation patterns and with high risk of change in land use.</li> </ul>	<ul style="list-style-type: none"> <li>Contamination of a highly productive aquifer, permanent or irreversible loss of soil functions over an area of &gt;20 ha, or loss or isolation of strategic mineral resource.</li> <li>Impact of the health of a large number of human receptors, including off-site.</li> </ul>
<b>Medium.</b>	<ul style="list-style-type: none"> <li>Results in impact on integrity of attribute/or loss of part of attribute, and/or possibly cause exceedance of statutory objectives and/or breach of legislation.</li> <li>Moderate degree of disruption to cultivation patterns</li> </ul>	<ul style="list-style-type: none"> <li>Reduction in the value of a feature, permanent or irreversible loss of soil functions over an area of 5 – 20 ha, or loss or isolation of regional/local mineral resource.</li> <li>Impact on the health of on-site human</li> </ul>

Magnitude	Description	Example
	with moderate risk of change in land use.	receptors (i.e. the workforce).
<b>Small.</b>	<ul style="list-style-type: none"> <li>Results in minor impacts on receptor.</li> <li>Minimal degree of disruption to cultivation patterns and low risk of change in land use.</li> </ul>	<ul style="list-style-type: none"> <li>Measurable change in receptor, but of limited size/proportion.</li> <li>Reduction in the value of a feature, permanent or irreversible loss of soil functions over an area of &lt;5 ha, or a temporary, reversible loss.</li> </ul>
<b>Negligible.</b>	<ul style="list-style-type: none"> <li>No loss or alteration of characteristics, features or elements, no observable impact in either direction.</li> <li>Minimal or no disruption to cultivation patterns and very low risk of change in land use.</li> </ul>	<ul style="list-style-type: none"> <li>No significant loss in quality of receptor.</li> </ul>

11.4.9 The significance of effect is a product of the receptor or resource's sensitivity and magnitude of impact. The significance of effect can be either significant (major or moderate effects) or not significant (minor or negligible effects) as outlined in **Chapter 6**, Section 6.5 and **Table 6.1**.

11.4.10 The significance of effects is determined as if the impact has actually happened. However, in the context of ground conditions and land quality it is also important to consider the likelihood of the impact occurring when assessing the overall significance of effects. The likelihood of occurrence is defined as follows:

- High: Occurrence of an impact is very likely in the short-term and is almost certain to occur in the long term, or a complete pathway is known to already exist;

- Medium: An impact may occur, either due to an unplanned event or the presence of a complete pathway, and it is probable that it will do so over the long term;
- Low: An impact may occur, either due to an unplanned event or the presence of a complete pathway, and it is possible that it will do so over the long term but there is no certainty that it will do so; and
- Unlikely: The potential for an impact to occur may be present, but the circumstances under which an adverse effect would materialise, even in the long-term, are improbable.

## 11.5 POTENTIAL SIGNIFICANT EFFECTS AND MITIGATION

### Construction

11.5.2 The following aspects of the construction phase of the Proposed Development may have a potential impact on ground conditions and land quality:

- Early works, construction laydown and site preparation and access (soil stripping, levelling etc., if required);
- Excavations for construction of foundations for substations, including dewatering of excavations if required (anticipated depth up to 1.5 m);
- Piling of solar ground mounts through ramming and/or pre-drilling (anticipated depth up to 2.5 m);
- Excavations and backfilling for laying of cables (anticipated depth up to 1.5 m and up to 1 m wide);
- Management of waste and surplus soil; and
- Fuel and materials storage and use.

### Operation

11.5.3 The following aspects of the operational phase of the Proposed Development may have a potential impact on ground conditions and land quality:

- Occasional ground disturbance for maintenance activities; and
- Fuel storage and use (e.g. substation back-up diesel generator).

## Decommissioning

11.5.4 Aspects of the decommissioning phase are currently unknown but are anticipated to generally be the reverse of the construction sequence, including removal of surface and below-ground equipment, demolition of buildings and reinstatement of the land to agricultural use. In general, it is assumed that the environmental effects from decommissioning will be no worse than those that occur during construction. Decommissioning works would be undertaken in line with a Decommissioning Environmental Management Plan (DEMP), agreed in advance with the planning authority. Therefore, no separate assessment for decommissioning phase activities is proposed to be undertaken for this topic (as per commitment **GC1**).

## Mitigation

- 11.5.5 Mitigation measures will be presented to avoid, minimise or reduce adverse impacts. The requirement for additional measures will be dependent on the significance of the effects on ground conditions and land quality and will be consulted upon with statutory organisations during the EIA process.
- 11.5.6 Based on the assessment of the baseline and the identification of any potential impacts, the ES will make clear commitments to the mitigation measures to be employed by contractors, including measures to be adopted should any previously unidentified contamination be encountered during the construction phase. It is anticipated that mitigation in relation to this topic will be secured via implementation a CEMP. An outline CEMP will be included in the ES. The CEMP will be supported by detailed plans, including a Soil Management Plan (SMP) to promote sustainable soil management and to minimise impacts on soil health and potential land contamination.

## 11.6 PROPOSED SCOPE OF THE EIA

11.6.1 On the basis of the likely sensitive receptors and aspects of the Proposed Development described above, the potential effects proposed to be scoped into and out of the EIA for this topic are presented in **Tables 11.3** and **11.4**.

### **Table 11.3 Elements of the Land Quality and Ground Conditions Assessment Proposed to be Scoped In to the EIA.**

Potential Effect/Topic	Proposal for Assessment within the EIA	Rationale
<b>Construction</b>		
Loss of BMV agricultural soil resource.	Scoped In.	Temporary loss of BMV soils will occur in the locations of construction working areas. The assessment will focus on the potential impact of the Proposed Development on soil quality.
Potential impacts on designated mineral resources.	Scoped In.	Designated mineral resources identified within the Study Area (i.e. Broadfield Farm, an allocated 'Proposed and Reserve Site' for potential future sand and gravel abstraction).
Encountering contamination during construction works during activities involving ground disturbance.	Scoped In.	Construction works will include disturbance and / or removal of the ground and groundwater which could potentially: <ul style="list-style-type: none"> <li>• Remove, relocate or mobilise potential contaminants in soil;</li> <li>• Mobilise contaminants into groundwater, resulting in potential effects on groundwater abstractions from aquifers; and</li> <li>• Expose construction workers and users of neighbouring properties to potentially contaminated dust (e.g. during soil removal, transportation and placement activities).</li> </ul>
Potential effects on groundwater as a result of excavations and dewatering.	Scoped In.	Foundation construction will entail ground disturbance to an anticipated depth of approximately 2.5 m which may require dewatering of excavations, depending on local groundwater levels. Potential for effects on groundwater resources (quality and quantity) to occur.

Potential Effect/Topic	Proposal for Assessment within the EIA	Rationale
Use of plant and equipment and storage and use of materials and substances with polluting potential.	Scoped In.	Substances with polluting potential will be used during construction (e.g. concrete, fuel, oils) of the Proposed Development, which could be mobilised to ground or Controlled Waters as a result of accidental leaks or spills.
<b>Operational Phase</b>		
Loss of BMV agricultural soil resource	Scoped In	Permanent loss of BMV soils will occur in the locations of permanent buildings / infrastructure (i.e. Onsite Substation).
Encountering contamination during occasional operational phase maintenance activities involving ground disturbance.	Scoped In.	Maintenance works will include disturbance and / or removal of the ground and groundwater as per construction phase.
Use of plant and equipment and storage and use of materials and substances with polluting potential.	Scoped In.	Substances with polluting potential will be used during operation (fuel, transformer oils) of the Proposed Development, which could be mobilised to ground or Controlled Waters as a result of accidental leaks or spills.
Permanent changes to or loss of soil function in the locations of permanent development (e.g. compaction, changes to drainage/infiltration)	Scoped In.	Post-construction, working areas will be reinstated to pre-existing condition as far as reasonably practicable. Taking into consideration that the Site includes areas currently subject to agricultural activity, including ploughing and other heavy machinery movements, this aspect is not considered to require further assessment.

Potential Effect/Topic	Proposal for Assessment within the EIA	Rationale
of water to ground).		However, in areas of permanent development where soil will not be reinstated following construction, potential effects on soil function are scoped in.

**Table 11.4 Elements of the Ground Conditions and Land Quality Assessment Proposed to be Scoped Out of the EIA**

Potential Effect/Topic	Proposal for Assessment within the EIA	Rationale
<b>Construction, Operation and Decommissioning</b>		
Impacts to geological SSSIs or LoGS.	Scoped Out.	No SSSIs or LoGS have been identified within the Study Area.
<b>Construction</b>		
Temporary changes to soil function (e.g. compaction, changes to drainage/infiltration of water to ground) during construction.	Scoped Out.	In temporary working areas subject to vehicle and heavy plant movement during construction, the topsoil and subsoil will be stripped and stored on-site in separate stockpiles in line with Defra's 2009 Construction Code of Practice for the Sustainable Use of Soils on Construction Sites PB13298 <sup>143</sup> .

## 11.7 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTIES

- 11.7.1 At this stage, no project-specific ground investigation data are available for the Site. Site-specific ground investigation surveys (including a groundwater monitoring regime) for geological/geotechnical assessment will be undertaken by the applicant or their appointed designers during the FEED stage of the Proposed Development. Any pertinent geological, hydrogeological and ground contamination information collected during further ground investigation will be used to update the baseline.

## 12. LANDSCAPE AND VISUAL

### 12.1 INTRODUCTION

- 12.1.1 This chapter outlines the scope of the Landscape and Visual Impact Assessment (LVIA) for the Proposed Development. It provides a summary of legislation, policy and guidance, an overview of baseline conditions, likely effects and mitigation measures, and a summary of the proposed EIA methodology. The potential effects of the Proposed Development have been identified through a technical review of the current design, construction, operational (including maintenance), and decommissioning aspects of the Proposed Development.
- 12.1.2 It will also outline the proposed approach to the technical scope of this chapter in the EIA and determine the specific elements that are scoped in and out of each assessment.
- 12.1.3 The LVIA will consider direct physical impacts, indirect physical impacts upon landscape receptors, and changes in visual amenity for visual receptors. It will also outline the proposed approach to the technical scope of this chapter in the EIA and determine the specific elements that are scoped in and out of each assessment, aligning with the requirements of the EIA Regulations. The LVIA will consider direct physical impacts, indirect physical impacts upon landscape receptors and the change in visual amenity upon visual receptors.

### 12.2 TOPIC-SPECIFIC LEGISLATION, POLICY AND GUIDANCE

#### Legislation

- 12.2.2 The scope of the LVIA section of the EIA has been developed in line with the key legislation, policy and associated guidance described below.

#### ***European Landscape Convention (Council of Europe, 2004 as amended by the 2016 protocol)***

- 12.2.3 The UK is a member state of the Council of Europe and a signatory to the European Landscape Convention (ELC) 2004<sup>144</sup> which promotes the protection, management and planning of landscapes and organises international co-operation on landscape issues. The treaty introduces the concept of all landscapes having value in terms of quality of life and wellbeing. Signatories commit to “*acknowledging that the landscape is an important part of the quality of life for people*”

*everywhere: in urban areas and in the countryside, in degraded areas as well as in areas of high quality, in areas recognised as being of outstanding beauty as well as everyday areas.”*

- 12.2.4 The LVIA will be a development specific process which accords with Article 6C of the ELC. The LVIA will be informed by extant Landscape Character Assessment studies (as described in Section 12.3), which more directly relate to the provision of Article 6C.

## Policy

### **National Planning Policy**

- 12.2.5 National Policy Statements (NPS) are the primary policy basis for NSIP development. The following NPSs are relevant to the Proposed Development:

### **Overarching National Policy Statement for Energy EN–1 (Designated January 2024)<sup>145</sup>**

- 12.2.6 NPS EN–1 sets out the government’s policy for delivery of major energy infrastructure. It recognises that virtually all nationally significant energy infrastructure projects will have adverse landscape effects but that beneficial landscape character impacts may also arise. It sets out the need for applicants to carry out a LVIA, including assessment of cumulative effects, and that this should include effects on landscape character, landscape components and visibility during construction and operation. NPS EN-1 also notes the need for careful siting and criteria for good design which takes account of potential impacts on landscape and visual amenity, in order to minimise negative effects, and recognising opportunities for landscape enhancement (including as a wider environmental gain and benefit in addition to biodiversity net gain). This is set out in the following sections which are of particular relevance to the LVIA:

- Section 4.3 considers environmental effects and considerations;
- Section 4.6, considers environment and biodiversity net gain;
- Section 4.7 provides criteria for ‘good design’ for energy infrastructure;
- Section 5.10 sets out the requirements of the LVIA and that it should take account of designated sites and local planning policy; and

- Section 5.11, considers land use, including open space and green infrastructure.

***National Policy Statement for Renewable Energy Infrastructure EN-3 (Designated January 2024)<sup>146</sup>***

12.2.7 NPS EN-3 sits alongside NPS EN-1 as the primary policy for nationally significant renewable energy infrastructure and provides relevant considerations for applicants with regard to the potential impacts of renewable energy development on landscape and visual amenity, including visual impacts from public rights of way, visual impacts of security and lighting measures and the need to mitigate these as far as possible. With particular regard to solar farm development, it states that whilst it may be the case that the development covers a significant surface area, in the case of ground-mounted solar PV modules it should be noted that with effective screening and appropriate land topography, the area of a zone of visual influence could be appropriately minimised (Section 2.10 , paragraph 2.10.95). Section 2.5 addresses the consideration of good design for energy infrastructure.

***National Policy Statement for Electricity Networks Infrastructure EN-5<sup>147</sup>***

12.2.8 This NPS is to be read in conjunction with NPS EN-1 and NPS EN-3 and sets out the government's policy in relation to electricity networks infrastructure. Sections 2.9 and 2.10 address the need for LVIA and set out the principal opportunities for mitigating adverse landscape and visual impacts of electricity network infrastructure.

***National Planning Policy Framework (updated February 2025)<sup>148</sup>***

12.2.9 The National Planning Policy Framework (NPPF) is the government regulation document for all forms of development within the United Kingdom. Of particular relevance to LVIA are:

- Paragraph 135, which requires planning decisions to ensure that developments are visually attractive as a result of good architecture, layout and appropriate and effective landscaping and that they are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change;

Paragraph 136, which highlights the important contribution made by trees to mitigate and adapt to climate change and that planning decisions should ensure that opportunities are taken to incorporate trees with appropriate measures in place to secure the long-term maintenance of newly-planted trees, and that existing trees are retained wherever possible;

- Paragraph 187 (a) and (b), which requires that “Planning policies and decisions should contribute to and enhance the natural and local environment by:
  - a. *Protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);*
  - b. *Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland”; and*
- Paragraph 192, which states that opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.

## **Local Planning Policy**

### **Uttlesford Local Plan (adopted January 2005)<sup>149</sup>**

- 12.2.10 This is the current adopted local plan for Uttlesford, adopted in January 2005. There was a draft replacement local plan produced in 2019, however, it was withdrawn at the Council Extraordinary Meeting in April 2020. The Proposed Development is situated predominantly within the boundary of this Council’s boundary; however, part of the northeastern extents and Cable Corridor Options are located within Braintree District Council.
- 12.2.11 The key policies of relevance of the current adopted 2005 local plan to the LVIA are listed out below with a summary of the policy requirements relevant to the LVIA.

- Policy ENV3 – Open spaces and trees. This policy ensures that the loss of traditional open spaces or visually important spaces, groups of trees or specimen trees should be avoided unless the need for development outweighs the amenity value;
- Policy ENV8 – Other landscape elements of importance for nature conservation. This policy sets out where a development that may adversely affect these landscape elements such as hedgerows, linear tree belts, larger semi natural or ancient woodlands and semi-natural grasslands, then appropriate mitigation measures or avoidance should be sought; and
- Policy GEN2 – Design. This policy sets out that development should meet the Supplementary Design Guidance and Supplementary Planning Documents design guidance.

### **Uttlesford Local Plan 2021-2041 (draft)**

12.2.12 The Uttlesford New Local Plan is not expected to be adopted until Spring 2026. While not formally adopted, a review of the policies relevant to LVIA has been undertaken.

12.2.13 The key policies relating to the landscape are:

#### *Core Policy 39: Green and Blue Infrastructure*

12.2.14 This policy sets out that existing trees and hedgerows should be protected during site preparation and construction. Where development may impact upon trees, then appropriate protection measures are to be put in place.

#### *Core Policy 41: Landscape Character*

12.2.15 This policy sets out that development proposals should preserve the character and appearance of valued landscapes. New development should reflect and enhance local landscape character, and accord with the Uttlesford Landscape Character Assessment (2023).

#### *Core Policy 52: Good Design Outcomes and Process*

12.2.16 This policy sets out that development proposals shall take accordance of the Uttlesford Design Code and Essex Design Guide.

### **Braintree District Council Local Plan 2033 (adopted July 2022)**

12.2.17 This is the current adopted local plan for Braintree District Council. The key policies of relevance of the current adopted local plan to the

LVIA are listed out below with a summary of the policy requirements relevant to the LVIA.

- Policy SP 7 – Place Shaping Principles. This policy sets out that development should respond positively to local character and context to preserve and enhance the quality of existing places and their environs;
- Policy LPP1 – Development Boundaries. This policy sets out that development outside development boundaries will be confined to uses appropriate to the countryside whilst also protecting and enhancing valued landscapes to protect the intrinsic character and beauty of the countryside;
- Policy LPP 52 – Layout and Design of Development. This policy sets out that proposals shall reflect or enhance the area's local distinctiveness. Proposals shall conserve and enhance local features of landscape importance. Landscape proposals should consist of native plant species and their design shall promote and enhance local biodiversity. Proposals shall include structural tree and hedge planting;
- Policy LPP 65 – Tree Protection. This policy sets out that prominent trees which contribute to the character of the local landscape should be retained where practical. Trees to be retained should be protected during development. New trees should conform to the aims of Braintree District's Tree Strategy;
- Policy LPP 67 – Landscape Character and Features. This policy states that the character of the various landscape areas in the District should be considered and to recognise the intrinsic character and beauty of the countryside to ensure development proposals are suitable for the local context. Proposals should regard the character of the landscape as identified in the District Council's Landscape Character Assessments. Proposals should seek to integrate into the local landscape; and
- Policy LPP 73 – Renewable Energy Schemes. This policy states that renewable proposals should not have unacceptable impacts on residential amenity including visual impact.

### ***Felsted Neighbourhood Plan<sup>150</sup>***

12.2.18 The Felsted Neighbourhood Plan has been drafted and went to review in 2023 and has yet to be adopted. The following policies of relevance to the LVIA are:

- FEL/ICH1 – High Quality Design. This policy sets out that proposals must respect the character of the Neighbourhood Areas and bring about enhancement to character. This would be done through sensitive treatment of the rural edge around Felsted; and
- FEL/CW1 – Landscape and Countryside Character. This policy sets out that development proposals must protect and enhance the landscape and character of the area they are situated, and must not significantly harm the important long distance, short range and glimpsed views, identified in the Felsted Heritage and Character Assessment Report 2017.

### **Planning Practice Guidance**

#### ***Natural Environment (Landscape), (updated February 2025)<sup>151</sup>***

12.2.19 With particular reference to paragraphs 036 (Reference ID: 8 – 036 - 20190721) and 037 (Reference ID 8 – 037 - 20190721), which describe how planning policies can conserve and enhance landscapes and sets out the benefits of using landscape character assessment.

#### ***Renewable and low carbon energy (updated August 2023)<sup>152</sup>***

12.2.20 With particular reference to paragraphs 005 (ref ID 5 – 005 - 20150618) and 013 (Reference ID 5 – 013 - 20150327), which identify several LVIA considerations, including visual impact, mitigation through screening and glint and glare.

### **Guidance**

12.2.21 The LVIA will draw from the following guidance documents:

- The Landscape Institute and Institute of Environmental Management and Assessment (April 2013) Guidelines for Landscape and Visual Impact Assessment, 3<sup>rd</sup> Edition (GLVIA3);
- The Landscape Institute (August 2024); LITGN-2024-01Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment (GLVIA3)<sup>153</sup>;

- The Landscape Institute. (September 2019) Technical Guidance Note (TGN) 06/19 Visual Representation of Development Proposals<sup>154</sup>;
- The Landscape Institute (March 2019) TGN 02/19 Residential Visual Amenity Assessment (RVAA)<sup>155</sup>;
- The Landscape Institute (September 2020) Infrastructure TGN 04/2020<sup>156</sup>;
- The Landscape Institute (May 2021), TGN 02-21 Assessing Landscape Value Outside National Designations<sup>157</sup>;
- Tudor, C. Natural England (October 2014) An Approach to Landscape Character Assessment<sup>158</sup>;
- Essex County Council Green Infrastructure Strategy (2020)<sup>159</sup>;
- National Infrastructure Commission Design Group, (2020) Design Principles for National Infrastructure<sup>160</sup>;
- Planning Inspectorate, (2024) Nationally Significant Infrastructure Projects: Advice on Good Design<sup>161</sup>;
- Essex County Council (2005) Essex Design Guide<sup>162</sup>; and
- Uttlesford District Council (2024) Uttlesford Design Code.<sup>163</sup>

## 12.3 PRELIMINARY BASELINE CONDITIONS

### Data sources

12.3.2 The ES will present detailed baseline information on the LVIA of the Proposed Development following the review and analysis of the following data sources:

- Aerial imagery;
- Ordnance Survey 1:25,000 mapping;
- Essex County Council's online Public Rights of Way mapping (Essex Highways), supported by Ordnance Survey Explorer Mapping;
- Natural England MAGIC geographic information relating to the natural environment (various datasets including national designations, open access land and ancient woodland inventory);
- DEFRA & Environment Agency, National LiDAR programme data (2022);
- Natural England (2014) National Character Areas;
- Uttlesford Landscape Character Assessment (2023);

- Felsted Heritage and Character Assessment (2017);
- Braintree, Brentwood, Chelmsford, Maldon and Uttlesford Landscape Character Assessments (2006);
- Braintree District Settlement Fringes (2015);
- Braintree District Council (2016) Tree Strategy;
- Findings of landscape and visual fieldwork and viewpoint photography; and
- Reference to other environmental topics including **Chapter 8**, **Chapter 10**, and **Chapter 11**.

### Proposed Landscape and Visual Study Area

- 12.3.3 A review of this preliminary ZTV shows that visibility is likely to be concentrated within 3 km of the Proposed Development, with localised, outlying areas. This is the predicted worst-case scenario and actual visibility is likely to reduce. Therefore, to encapsulate this, it is proposed that the Study Area will be 5 km for scoping; however, it may be modified during the LVIA process, as part of the iterative design development, as more detailed analysis is carried out and discussions are held with the LPAs and relevant consultees.
- 12.3.4 The exact route of the cable corridor is yet to be determined, but it will be within the Cable Corridor Options as shown in **Figure 1.2** which will be refined during the design and assessment process. In this case, a 0.5 km Study Area is proposed from the outer boundary of the Cable Corridor Options as the construction works for underground cabling will be localised, temporary and relatively short in duration.
- 12.3.5 The Study Area and preliminary ZTVs are illustrated on the following figures:
- **Figure 12.1 – Study Area ZTV;**
  - **Figure 12.2 – HG1 ZTV;**
  - **Figure 12.3 – HG2 ZTV;** and
  - **Figure 12.4 – HG3 ZTV.**

### Baseline Conditions

- 12.3.6 The Site and associated Study Area are located west of Braintree, Essex. The Study Area is defined by the east edge of Felsted and the western edge of Great Notley; to the north by and within 1 km of the

A120; and to the south by Bannister, French's and Bartholemew Green. The A120 forms a strong central spine through the centre of the Study Area.

- 12.3.7 The landscape within the northern half of the Study Area comprises a series of farmland plateau land with river valleys located to the northeast. This series of farmland comprises multiple farming fields which each are distinctly separated by hedgerows and trees. The regular placement of hedgerows and trees along field boundaries, reduces visibility throughout the landscape due to the flat topography of the landscape.
- 12.3.8 To the west is low-lying land situated in the Upper Chelmer River valley, with the small settlements of Felsted, Barnston and Little Dunmow scattered around the surrounding landscape, each connected via the A120 and a series of B-roads and village lanes.
- 12.3.9 To the south is predominantly land consisting of farmland plateau, with a river valley landscape located to the southwest. Scattered throughout the landscape in the south are several individual residential properties.
- 12.3.10 To the east lies the major industrial settlement of Braintree, which is surrounded by pockets of farmland plateau and river valley landscapes.
- 12.3.11 The main transport link includes the A120, which runs through the centre of the Study Area from east to west, and the A131 which runs from the south of the Study Area to the northeast, where it interjoins with the A120, due west of Braintree. A train line runs through the east of the Study Area from east to south, along with The Flitch Way which runs through the centre of the Study Area from east to west.
- 12.3.12 The Study Area comprises a number of ancient woodlands, Conservation Areas, and two Registered Parks and Gardens. These contribute to the value and sensitivity of the landscape's changes associated with the Proposed Development.
- 12.3.13 Overhead lines (OHL) pass through the east of the Study Area, with smaller powerlines passing through the centre of the Study Area from east to west. Each of these OHL pass through the Braintree substation to the east with the Braintree-Dunmow OHL lines passing through the Drapers Farm in the centre of the Study Area.

- 12.3.14 The Site is divided into three areas: HG1 in the east, HG2 in the centre, and HG3 in the west.

### **HG1**

- 12.3.15 HG1 is located west of Great Notley, extending south from Fentons Road and Mill Lane to north of Bartholemew Green, with mature trees and hedgerows along farmland boundaries forming the southern boundary of HG1 (north of Crix Green). The eastern boundary is formed from the west side of Mill Lane which is lined with trees and hedgerow, and the western boundary is formed from the River Ter.
- 12.3.16 The northern edge of HG1 abuts a redundant railway line that now forms Route 16/Flitch Way, part of the National Cycle Network connecting Braintree and Bishops Stortford (referred to as Flitch Way). As it passes the Site, Flitch Way alternates between a shallow cutting and low embankment and is well screened by a continuous belt of trees and shrub understory, with occasional glimpses south towards the Site where gaps occur. An oblique overbridge carries Flitch Way over the A120 providing elevated views to the north of the Site and Sorrel's Farm.
- 12.3.17 HG1 is on a low-lying spur at c.75 m Above Ordnance Datum (AOD), with a very shallow fall to the south (c.72 m AOD) and southwest (c.65 m AOD at the southwest corner). Slightly higher land lies to the north and northwest (c.77 m to 78 m AOD). HG1 is subdivided into small to medium sized fields of irregular shape and varied orientation, separated by ditches and intact or intermittent hedgerows with mature trees. Individual fields have a medium sense of enclosure created by a combination of flattish terrain, bounding vegetation, and field size. Smaller fields that occur along the northern edge of the Site to the east, south, and west of Fenton's Farm have a high sense of enclosure.
- 12.3.18 Settlement is sparse within HG1, with the individual settlements of Sorrel's Farm and Fenton's Farm located in the north, and Draper's Farm located in the east.
- 12.3.19 HG1 is crossed by a network of public footpaths, with the Flitch Way running adjacent across the north of this area.
- 12.3.20 There are no conservation areas within or immediately adjacent of HG1.

**HG2**

- 12.3.21 HG2 is located close to the River Ter which forms a large majority of the eastern boundary. The rest of the east boundary for HG2 is defined by a mixture of the HG1 land parcel and public footpaths, each of which are well lined with tree and hedgerow. The redundant railway line, Flitch Way, forms the entirety of HG2's northern boundary. HG2 is crossed by a network of public footpaths. The western extent of HG2 is defined by belts of hedgerow and trees.
- 12.3.22 This section of the Flitch Way is densely planted with select areas of exposure at PRoW entrances along the path. To the south of Flitch Way are open farmland with dense tree and shrub cover beyond. The alignment of vegetation along the River Ter contributes to the landscape's character along with the prominent woodland planting along the old railway line to the north.
- 12.3.23 HG2 is situated on a low-lying spur at c.66 m AOD, with a very shallow fall to the northeast (c.65 m AOD). Slightly higher land lies to the south to southwest (c.67 m AOD). HG2 is subdivided into small to medium sized fields of irregular shape and varied orientation, separated by intermittent hedgerows with mature trees and a farm entrance road. Individual fields have a medium/high sense of enclosure from mature trees and hedgerows on the east north, and west, with a low sense of enclosure from mature trees and hedgerows from the south.
- 12.3.24 HG2 is sparsely settled with individual settlements at Frenche's Farm on the southern boundary.
- 12.3.25 There are no registered conservation areas within or immediately adjacent of HG2.

**HG3**

- 12.3.26 HG3 is located south of the A120 with the northern most land parcel west of Seabrooks Farm and defined by mature trees and intermittent hedgerow. The west boundary is formed of soft vegetation that extends to the residential areas south and southwest of the HG3 boundary line, incorporating patches of woodland and scrub planting. The east boundary is formed of hedgerow and mature trees, bordering HG2. The southern boundary is defined by Rayne Road which is screened by hedgerow and trees. HG3 is bisected by Flitch

Way, which is well screened with occasional glimpses north and south.

- 12.3.27 HG3 is subdivided into small, medium and large sized fields of irregular shape and varied orientation, separated by ditches and intact or intermittent hedgerows with mature trees; historically, hedgerows have been removed to create the larger fields.
- 12.3.28 Individual fields have a medium to low sense of enclosure created by a combination of flattish terrain, bounding vegetation, and field size. Smaller fields have a higher sense of enclosure.
- 12.3.29 HG3 is sparsely settled. There are the individual settlements of Bannister Green, Cock Green, Cobblers Green, Causeway End and Felsted to the south and southwest outside the Site Boundary.
- 12.3.30 Cable Option 1 would have restricted visibility within and the areas surrounding HG3, with the majority of visibility from the B1417 outside the Site Boundary. Existing overhead electricity transmission lines cross HG3 from northwest to southeast.
- 12.3.31 HG3 is crossed by a small number of public footpaths and bridleways, with Flitch Way bisecting the land parcel (north of Bannister Green).
- 12.3.32 There are no registered conservation areas within or immediately adjacent of HG3.

### ***Cable Corridor Options:***

#### ***Cable Option 1***

- 12.3.33 Extends east over arable farmland and then moves south past Great Notley Conty Park and the Braintree Business Park, before it moves along the southern boundary of Great Notley and moves northeast past Row Green. It then passes over farmland south of the A120 before reaching the UKPN 132 kV Braintree Substation.

#### ***Cable Option 2***

- 12.3.34 Extends south over a series of farmland before moving north along the same route as Cable Option 2, eventually reaching the UKPN 132 kV Braintree Substation.

### **Cable Option 3**

12.3.35 Extends south along same route as Option 3 but deviates over farmland before rejoining same route. It then moves over a series of vast open farmland south of the Cable Options 2 and 3 before rejoining same path. It then follows the same route as Cable Option 2 to the UKPN 132 kV Braintree Substation.

### **Cable Option 4**

12.3.36 Extends through Tye Green to the south of the proposed Onsite substation location before moving west through Notley Golf Course. The route then heads north through Black Notley along Witham road where it stops at the intersection with Buck Hill road.

### **National Landscape Designations**

12.3.37 Landscape may be valued at local or national level and, as such, may be designated at the national and or local level. At the national level, the Site and Study Area is not designated on account of landscape quality.

### **Local Landscape Designations**

12.3.38 There are no local landscape designations within the Site.

12.3.39 The Site and Study Area are not located within a Green Belt.

12.3.40 The Saling Grove and Saling Hall Registered Park and Garden is located in the north of the Study Area approximately 3 km north of the Site Boundary as presented in **Figure 12.6**.

12.3.41 Ancient woodlands, while not a landscape designation, where they are within the wider Study Area will be referenced within the landscape character sensitivity assessment as indicators of value.

12.3.42 Conservation areas, while not a landscape designation, will be assessed within this assessment. Where they are within the wider Study Area they will be referenced within the landscape character sensitivity assessment as indicators of value.

### **National Landscape Character Areas**

12.3.43 The Site and Study Area is located within NCA 86 – South Suffolk and North Essex Clayland.

12.3.44 The key characteristics of relevance are as follows:

- An undulating chalky boulder clay plateau is dissected by numerous river valleys, giving a topography of gentle slopes in the lower, wider valleys and steeper slopes in the narrower upper parts;
- Lowland wood pasture and ancient woodlands support the dormouse and a rich diversity of flowering plants on the clay plateau. Large, often ancient hedgerows link woods and copses, forming wooded skylines;
- The agricultural landscape is predominantly arable with a wooded appearance. There is some pasture on the valley floors. Field patterns are irregular despite rationalisation, with much ancient countryside surviving. Field margins support corn bunting, cornflower and brown hare;
- There is a dispersed settlement pattern of scattered farmsteads, parishes and small settlements around 'tyes' (commons) or strip greens and isolated hamlets. The NCA features a concentration of isolated moated farmsteads and numerous well-preserved medieval towns and large villages;
- Winding, narrow and sometimes sunken lanes are bounded by deep ditches, wide verges and strong hedgerows. Transport infrastructure includes the A14, A12, M11 and Stansted Airport; and
- A strong network of public rights of way provides access to the area's archetypal lowland English countryside.

### Local Landscape Character Areas

12.3.45 The Study Area is covered by the following landscape character assessments:

- Uttlesford LCA 2023 (which supersedes the Uttlesford LCA 2006); and
- Braintree, Brentwood, Chelmsford, Maldon, Uttlesford Study, 2006 which supersedes the Essex LCA 2003.

12.3.46 The two LCAs are presented on **Figure 12.5**.

12.3.47 The following LCAs cover the Study Area and their relevance to each Site.

### HG1

12.3.48 HG1 is covered by BBCMU LCA B13 – Rayne Farm Plateau in the east and BBCMU B16 (2006) and Uttlesford LCA B11 (2023): Central Essex Farmland to the west.

### **HG2**

12.3.49 HG2 is covered entirely by BBCMU B16 (2006) and Uttlesford LCA B11 (2023): Central Essex Farmland to the west.

### **HG3**

12.3.50 HG3 is covered entirely by BBCMU B16 (2006) and Uttlesford B11 (2023): Central Essex Farmland to the west.

### **Cable Corridor Options**

12.3.51 The Cable Corridor Options pass through:

- BBCMU B16 (2006) B11 (2023): Central Essex Farmland;
- B17 (2006): Terling Farmland Plateau;
- B18 (2006): Silver End Farmland Plateau;
- A10 (2006): Brain River Valley; and
- C6 (2006): Blackwater & Brain Valley.

### **Visual Baseline**

12.3.52 The preliminary ZTV and initial walkover survey identified the potential likely visual receptors (people) whose views may result in impacts from the Proposed Development.

12.3.53 The Proposed Development would be visible from public views from minor roads and public rights of way within the Study Area. Private views are likely to be available from dwellings within the countryside around the Proposed Development and at the edge of nearby settlements.

12.3.54 Further fieldwork will be undertaken throughout the design and assessment process.

12.3.55 Photography will be captured from representative viewpoints across the Study Area in winter conditions and, if possible, summer conditions to show the seasonal effect of vegetation on the visibility of the Proposed Development. If not possible (due to late additional viewpoint requests), commentary will be provided noting the change in the view in the seasons.

## Visual Receptors

12.3.56 The visual receptors likely to experience effects from the Proposed Development are those situated along the edges of settlement, isolated farmstead and properties within or adjacent to HG1, HG2 and HG3. These include residents of settlements in the Study Area as follows:

- Gransmore Green;
- Bannister Green;
- Molehill Green;
- Little Common;
- Felsted;
- Rayne;
- Great Notley;
- Willows Green;
- Stebbing Green;
- Blake End; and
- Cock Green.

12.3.57 This list is preliminary and is likely to include additional receptors as the assessment and design advances. The Viewpoints are presented on **Figures 12.1, 12.2, 12.3** and **12.4** and within **Table 12.1, Table 12.2, Table 12.3** and **Table 12.4**.

12.3.58 Other receptors likely to experience visual impact include:

- Residents of farmsteads and isolated properties within the Study Area;
- People using the Public Rights of Way throughout the Study Area and those travelling along Flitch Way;
- People travelling throughout the landscape within the Study Area on the road network, including minor roads to trunk roads and motorways; and
- Visitors to open access land and public parks and amenity spaces, which are likely to include:
  - Leez Augustinian Priory, fishponds and Tudor mansions Scheduled Monument;
  - Saling Grove and Saling Hall Registered Park and Garden; and
  - Great Notley Country Park.

## Preliminary Viewpoints

- 12.3.59 A number of preliminary representative viewpoints have been selected for the assessment of visual effect upon visual receptors within the Study Area likely to experience views; these are presented in the following tables.
- 12.3.60 The proposed viewpoints will be subject to further amendments as the Proposed Development evolves and more detailed survey work is carried out. The exact location of viewpoints will be micro sited during the field work and subject to discussion and agreement with the relevant stakeholders.

**Table 12.1 Preliminary Representative Viewpoints - HG1**

Ref	Location and Description	Receptors
VP_09	View south from Footpath 39 (Rayne) on the Site Boundary. BNG: 571460, 221990	Users of the PRow at Fenton's Farm
VP_10	View west from intersection of Footpath 22/24 (Rayne) on the Site Boundary. BNG: 571899, 221807	Users of PRow
VP_11	View northwest from School Road (Rayne), approx. 243 m east of the Site Boundary. BNG: 572215, 221477	Users of PRow
VP_12	View north from School Road (Rayne), approx. 360 m south east of the Site Boundary. BNG: 571772, 220728	Users of PRow

**Table 12.2 Preliminary Representative Viewpoints - HG2**

Ref	Location and Description	Receptors
VP_07	View south towards H1/H2 from Bridleway 44 (Felsted) approx. 8 m north of the Site Boundary. BNG: 569479, 221742	Users of NCN 16 cycle route
VP_14	View south from Footpath 44 (Rayne) on the Site Boundary.	Residential views from Frenches Farm and users of PRow

Ref	Location and Description	Receptors
	BNG: 570463, 221084	

**Table 12.3 Preliminary Representative Viewpoints - HG3**

Ref	Location and Description	Receptors
VP_01	View north towards R7 from Frenches Green Road on Footpath 44 (Felsted). On the Development Boundary. BNG: 569946, 220727	Users of PRow
VP_02	View northeast towards R7 from Cressages Close on Footpath 45 (Felsted) approx. 10 m west of the Site Boundary. BNG: 569593, 221012	Users of PRow and residential views from the back of properties at Cressages Close
VP_03	View east towards R4 from Watch House Green along Footpath 15 (Felsted) on the Site Boundary. BNG: 569314, 221200	Users of PRow
VP_04	View east/northeast towards R3 along Footpath 7 (Felsted), approx. 244 m west of the Site Boundary. BNG: 568956, 221420	Users of PRow and views of nursery
VP_05	View north towards R1 from bridleway 130 (Felsted), approx. 148 m west of the Site Boundary. BNG: 568735, 221657	Users of Flitch Way and NCN 16 cycle route

**Table 12.4 Preliminary Representative Viewpoints - Cable Corridor Options**

Ref	Location and Description	Receptors
VP_15	View 360 for Cable Option 4 – Cross Country within the Cable Corridor Options. BNG: 572664, 219542	Users of PRow

Ref	Location and Description	Receptors
VP_16	View south of Cable Option 3 (Rayne/Croxley Green) and 4 (Cross Country) within the Cable Corridor Options. BNG: 573095, 219603	Users of PRow
VP_17	View of Cable Option 2 – Willows Green, approx. 50 m east of the Cable Corridor Options. BNG: 573112, 220469	Users of PRow and recreational users of Horizon Park
VP_18	View northeast of Cable Option 3 – Rayne/Croxley Green, approx. 1.66 km south west of the Cable Corridor Options. BNG: 570102, 218985	Users of PRow
VP_19	View east and west of Cable Option 2 – Willows Green, approx. 89 m south of the Cable Corridor Options. BNG: 574874, 220318	Users of PRow and residential views from properties at Row Green
VP_20	View north for Cable Option 4 – Cross Country, approx. 73 m south of the Cable Corridor Options. BNG: 575492, 219537	Users of PRow
VP_21	View west for Cable Option 4 – Cross Country within the Cable Corridor Options. BNG: 576107, 220555	Users of PRow and visitors to St Peter and St Paul Church
VP_22	View north by northeast for Cable Option 3 (Rayne/Croxley Green) and 5 (Witham Road) within the Cable Corridor Options. BNG: 577350, 221476	Users of PRow
VP_23	View of substation and surrounding Cable Options (1-5 ending), approx. 58 m north of the Cable Corridor Options.	Users of PRow

Ref	Location and Description	Receptors
	BNG: 577349, 220516	
VP_24	View north for Cable Option 4 (Cross Country) and 5 (Witham Road), approx. 2.05 km south of the Cable Corridor Options. BNG: 576816, 217988	Users of PRow

## Visualisations

12.3.61 Subject to agreement with relevant stakeholders and where significant effects are likely, a number of visualisations of the Proposed Development will be produced from the Viewpoints being used within the assessment. The exact number and locations are not known at this stage and will be confirmed during the assessment. The visualisations will be created in accordance with TGN 06/19.

## Residential Visual Amenity Assessment

12.3.62 The purpose of Residential Visual Amenity Assessment (RVAA) is to consider how the change in view resulting from the Proposed Development would impact upon the visual aspect of residential amenity (as distinct from other aspects such as noise) of nearby properties and whether the predicted effects would affect living conditions.

12.3.63 TGN 02/19 prepared by the Landscape Institute sets out the best practice guidance for RVAA. The guidance reflects relevant cases and reflects the difference between significant visual effects and unacceptable effects on residential amenity.

12.3.64 The issue to be considered in RVAA is not whether there would be any change in a view from a private property as a result of the Proposed Development, but whether the effect is of such a nature and or magnitude that it potentially affects the quality of life for the resident.

12.3.65 This is known as the Residential Visual Amenity Threshold (RVAT).

12.3.66 In relation to the Proposed Development, the new structures proposed would be low in height. In consideration of similar schemes, it is considered that the RVAT would not be met beyond 250 m, and

therefore it is proposed to scope out properties beyond 250 m at scoping stage.

- 12.3.67 Due to the preliminary information currently available, it is not possible to scope out RVAA within 250 m of the Proposed Development. However, this will be reviewed as the design and assessment of the Proposed Development progresses, and a RVAA will be undertaken if deemed to be required.

### **Temporal Scope**

- 12.3.68 The landscape and visual assessment will be undertaken for the following scenarios:

- Peak construction activity, assuming that construction activity would take place at the same time across the Proposed Development during winter, to demonstrate the worst-case scenario;
- Year 1 of operation, winter to reflect a worst-case scenario;
- Year 15 of operation, summer to reflect the entirety of the Proposed Development and when any Proposed Mitigation has achieved its design intent and effectiveness; and
- Peak decommissioning activity during winter to demonstrate the worst-case scenario.

- 12.3.69 The proposed landscape and visual mitigation will be set out within the LVIA and will involve consultation with statutory consultees throughout the assessment.

## **12.4 TECHNICAL SCOPE AND APPROACH TO EIA**

### **Assessment Methodology**

- 12.4.2 The LVIA will be carried out with a project specific methodology prepared in accordance with GLVIA3, which will be appended to the LVIA.

- 12.4.3 A separate methodology for how the ZTV and visualisations that accompany the LVIA will be prepared in accordance with GLVIA3 and TGN 06/19 and other relevant guidance. This will be appended to the LVIA.

- 12.4.4 The LVIA will establish:

- A clear understanding of the Site and its setting in respect of landscape character and visual amenity;
- The Proposed Development and its relationship with the landscape character and visual amenity;
- The potential effects of the Proposed Development upon landscape character; and
- The potential effects of the Proposed Development on visual receptors, including where required sequential visual effects.

12.4.5 The LVIA that will be undertaken will involve a combination of desktop study and field surveys (including photography), with subsequent analysis and assessment, as summarised below.

### ***Establishing the Landscape and Visual Baseline***

- A review of relevant published background data (including Ordnance Survey mapping and historic mapping, aerial photography, published Landscape Character Assessments, studies and relevant supporting evidence base documents);
- Field surveys of the Site and surrounding area and inspection of publicly accessible views with consideration of private views for groups of properties and broad locations based upon the nearest available public location alongside professional judgement. Representative photographs will be taken during field work and will be presented in the LVIA in accordance with current best practice guidance from the Landscape Institute;
- Evaluation of the features and components of the landscape and their contribution to the landscape character, context and setting, based on the above desktop study and field work;
- Evaluation of the potential area in which the development may be visible, considering people (visual receptors) who may experience views, viewpoints and the nature of views based upon the above desktop study and field work;
- The landscape and visual baseline will be based on the Site as it is at the time the LVIA is undertaken but, where appropriate, taking into account committed development and/or development allocations not yet implemented, including a cumulative assessment and reported in the ES; and

- Input into the ongoing design of the Proposed Development as part of an iterative assessment and design process, reviewing initial design proposals and considering and advising upon mitigation options to avoid, reduce, or offset adverse landscape and visual effects and maximise opportunities for landscape integration and enhancement.

### ***Assessment of landscape effects***

- Identification of the components of the landscape that are likely to be affected by the Proposed Development (landscape receptors), such as overall character and where appropriate any key characteristics, individual elements or features, and specific aesthetic or perceptual aspects;
- Review the design proposals and mitigation measures proposed to avoid, reduce or offset significant adverse effects; and
- Analysis and consideration of the potential landscape and visual effects of the Proposed Development.

### ***The Effect of the Proposed Development on Landscape Receptors***

- Determine the sensitivity of the landscape to the changes likely to arise from the development, combining judgements about:
  - The value attached to the landscape receptor; and
  - The susceptibility of the landscape receptor to the type of change arising.
- Assessment of the magnitude of effect, made up of judgements about:
  - The size and scale of the effect;
  - The geographical extent of the area that will be affected; and
  - The duration of the effect and its reversibility.
- Assessment of the significance of the effect on the landscape, (taking into consideration the sensitivity of the receptor and the magnitude of effect) during construction, at winter year 1 and summer year 15 to determine which effects are significant in EIA terms.

### **Assessment of Visual Effects**

- Identification of the visual receptors (people) likely to experience changes to views and visual effects of the Proposed Development;

- Assessment of the sensitivity of visual receptors to the changes likely to arise from the development, combining judgements about:
  - The value attached to views; and
  - The susceptibility of the visual receptor to the type of change arising.
- Review the design proposals and mitigation measures proposed to avoid, reduce or offset significant adverse effects;
- Assessment of the magnitude of effect, made up of judgements about:
  - The size and scale of the effect;
  - The geographical extent of the area that will be affected; and
  - The duration of the effect and its reversibility.
- Assessment of the significance of visual effects (taking into consideration the sensitivity of the receptor and the magnitude of effect) during Construction, at winter year 1, and summer year 15 to determine which effects are significant in EIA terms. The significance of effects will be determined using the principles of the guidance and criteria set out in GLVIA and the definitions as set out in **Table 12.5**.

**Table 12.5 Significance of Effects Threshold**

Importance of Landscape and visual effects			
Magnitude of Effects	Landscape Sensitivity or Visual Sensitivity		
	Low	Medium	High
High	Moderate effects	Major effects	Major effects
Medium	Minor effects	Moderate effects	Major effects
Low	Minor effects	Minor effects	Moderate effects
Negligible	Negligible effects	Negligible effects	Negligible effects

- 12.4.6 In accordance with the EIA Regulations, it is essential to determine whether the predicted effects are likely to be 'significant'. In this instant, significant landscape and visual effects resulting from the Proposed Development are typically those effects that result in a 'major', a 'moderate – major', or 'moderate' effect, for each a judgement will be made to state whether significant or not significant with supporting narrative where required.

## 12.5 POTENTIAL SIGNIFICANT EFFECTS AND MITIGATION

- 12.5.1 Likely significant effects on the landscape and visual resources may occur from the Proposed Development and are likely to include the following.

### Construction

- 12.5.2 The Proposed Development has the potential to cause landscape and visual effects during the construction phase, due to alterations to surface landform and vegetation from agricultural land to the built form, the presence of construction plant and machinery, introduction of construction compounds and access routes, increased levels of noise and activity on site and a reduction of tranquillity.

### Operation

- 12.5.3 The Proposed Development has the potential to cause landscape effects during operation, due to the change in land use and the introduction of solar PV arrays and associated infrastructure into the landscape, although this is regarded as reversible. The Proposed Development would affect existing views, many of which are currently across farmland and rural in character albeit with some influences from scattered dwellings, settlement and infrastructure.
- 12.5.4 The Proposed Development also has the potential to result in beneficial landscape and visual effects in the longer term, resulting from changes to land cover and new planting.

### Decommissioning

- 12.5.5 The decommissioning phase has the potential for landscape and visual effects, due to the presence of construction machinery and increased levels of activity on the Site when removing the panels and associated structures.

## Mitigation

12.5.6 The LVIA will inform the iterative design of the Proposed Development and embedded mitigation measures to avoid or reduce landscape and visual impacts on sensitive landscape and visual resources and receptors. Designed-in measures relevant to landscape and visual receptors would include:

- Siting and layout of the solar PV arrays and associated structures to avoid important landscape features and elements such as existing trees and hedgerows and to provide suitable buffers between the solar PV arrays and construction areas and woodland, trees, properties and PRow. Consideration will also be given to the findings of the Glint and Glare Assessment, breaking up large solar PV arrays where feasible and considering the colour and tone of associated structures to minimise their visibility and scale in the landscape and views;
- Any access tracks to utilise existing tracks wherever possible with new routes located to pass through existing gates and gaps in hedgerows where feasible;
- Development of a comprehensive Landscape Masterplan for the Site, including landscape proposals for the solar PV arrays and substations and landscape reinstatement proposals for the chosen cable corridor;
- Landscape proposals would seek to deliver landscape and biodiversity enhancement, integrate and embed the Proposed Development within the existing landscape character, provide new green infrastructure that connects to the wider green infrastructure network, provide hedgerow and landscape reinstatement, and provide visual filtering and screening as appropriate;
- No significant lighting to be proposed; and
- Preparation of a Decommissioning Plan.

12.5.7 The proposed landscape and visual mitigation will be set out within the LVIA and consulted upon with statutory consultees throughout the EIA process. An Outline LEMP will be developed in consultation with relevant consultees to secure the long-term management of the landscape and biodiversity strategy. The LEMP will be secured via a requirement in the DCO.

## 12.6 PROPOSED SCOPE OF THE EIA

- 12.6.1 On the basis of the sensitivities described above, the potential effects proposed to be scoped in to or out of the EIA for this topic are presented in **Tables 12.6** and **12.7**.

**Table 12.6 Elements of the LVIA Proposed to be Scoped In to the EIA**

Receptor Group	Scope of the EIA	Rationale for scoping sub-topics in or out
Landscape fabric including trees (and Tree Preservation Order (TPO) or veteran trees), woodland (and ancient woodland) and hedgerows, landform and land use and features/ characteristics of value on the Site (considered in its local context).	Scoped in throughout construction, operation and decommissioning.	The Proposed Development would potentially result in adverse and beneficial, direct and indirect landscape effects on landscape features and fabric. These would occur as a result of the addition of new elements/features in the landscape, and/or changes and removal of existing landscape resource.
Local Landscape Character Areas within the Study Area.	Scoped in throughout construction, operation and decommissioning.	The Proposed Development would potentially result in adverse and beneficial, direct and indirect landscape effects upon landscape character within the Study Area as a result of the introduction of new elements/features within the landscape, changes and removal of existing landscape characteristics.
Visual receptors using PRoW within the Site Boundary.	Scoped in during operation.	PRoWs which cross the Site will be either temporarily closed or diverted during the construction phase and will therefore be scoped out of the LVIA at construction and decommissioning stages.
Visual receptors at public locations or users of Public Rights of Way within the Study Area where the ZTV demonstrates theoretical visibility.	Scoped in throughout construction, operation and decommissioning.	There would be views of the Proposed Development from a range of public locations across the Study Area at the construction, operational, and decommissioning stages. Draft Representative viewpoints are proposed in preliminary viewpoints indicated in <b>Table 12.1, Table 12.2,</b>

Receptor Group	Scope of the EIA	Rationale for scoping sub-topics in or out
		<b>Table 12.3, and Table 12.4.</b>
Visual receptors: residents within the Study Area.	Scoped in throughout construction, operation and decommissioning.	Residents would have a range of views of the Proposed Development at the construction, operational and decommissioning stages. Assessment of visual effects upon residential properties would be considered on the basis of 'groups' or general locations of properties where commonality of the view is likely and undertaken from the curtilage of residential properties where publicly accessible or appropriate representative viewpoints from publicly accessible locations, applying professional judgement.
Cumulative effects of similar developments with intervisibility within the Study Area.	Scoped in throughout construction, operation and decommissioning.	Any relevant planning applications that come forward during the course of the assessment up to an agreed cut-off date with the statutory consultees to allow completion of the LVIA would be considered and assessed in terms of their potential to result in significant cumulative landscape and/or visual effects.
Residential Visual Amenity Assessment (RVAA) for properties within 250 m of the Proposed Development.	Scoped in during operation.	The Proposed Development as the design progresses will be reviewed to consider residential properties in proximity to the Proposed Development, if it is likely that visual change would materially affect residential amenity then a separate RVAA will be undertaken. Construction and decommissioning impacts would be for short duration so scoped out of the RVAA.

**Table 12.7 Elements of the LVIA Proposed to be Scoped Out of the EIA**

Receptor Group	Scope of the EIA	Rationale for scoping sub-topics in or out
Landscape subject to statutory landscape designation	Scoped out throughout construction, operation and decommissioning.	There are no National Parks or National Landscapes within the Study Area.
Landscape subject to non-statutory/ local landscape designation.	Scoped out throughout construction, operation and decommissioning.	There are no local designations within the Site.
National Character Area (NCA).	Scoped out throughout construction, operation and decommissioning.	The Proposed Development is unlikely to result in significant adverse effects on the character of the landscape at a national level.
Local Landscape Character Areas outside of the Study Area.	Scoped out throughout construction, operation and decommissioning.	Landscape Character Areas that lie at the periphery of the Study Area or have no intervisibility or interconnectivity with the Site have been scoped out, as it is considered the Proposed Development would not result in direct effects on the elements/features which define the character area, and the Proposed Development would be unlikely to result in significant adverse indirect effects upon their character as a result of visibility.

Receptor Group	Scope of the EIA	Rationale for scoping sub-topics in or out
Visual receptors using PRow within the Site Boundary.	Scoped out for construction and decommissioning.	PRows which cross the Site will be either temporarily closed or diverted during the construction phase and will therefore be scoped out of the LVIA at construction and decommissioning stages.
Visual receptors using Public Rights of Way or other public outdoor locations within the Study Area where the ZTV demonstrates no visibility.	Scoped out throughout construction, operation and decommissioning.	Where the ZTV has identified no visibility then no effect would be predicted to occur or if there is potential visibility this would not be significant.
Visual receptors at public locations outside of the Study Area.	Scoped out throughout construction, operation and decommissioning.	Views may be possible beyond the Study Area. Where visible it is considered, the Proposed Development would not be readily perceptible or is unlikely to result in significant adverse visual effects given consideration of the distance, intervening screening and context of existing views.
Visual receptors: workers on the land or private outdoor recreational locations.	Scoped out throughout construction, operation and decommissioning.	Workers and those involved in a certain outdoor activity e.g. sports are unlikely to be focused upon views and any adverse effects upon their views and visual amenity would be unlikely to be significant.
Cumulative effects of similar developments without intervisibility or outside of the Study Area.	Scoped out throughout construction, operation and decommissioning.	Where developments are outside the Study Area and/or have no intervisibility with the Proposed Development they would be unlikely to result in significant cumulative effects so would be scoped out.

Receptor Group	Scope of the EIA	Rationale for scoping sub-topics in or out
Night time effects and or lighting effects.	Scoped out throughout construction, operation and decommissioning.	The Site would not be routinely lit during operation with lighting restricted to periods of maintenance or emergencies, where used it would be limited to low level security lighting. There would be some lighting required during construction/ decommissioning normal working hours, but this would be designed to minimise visual intrusion and managed in accordance with best practice guidance as part of the CEMP (as per commitment <b>LV3</b> ).
Residential Visual Amenity Assessment (RVAA) for properties within 250 m of the Proposed Development.	Scoped out for construction and decommissioning.	The Proposed Development as the design progresses will be reviewed to consider residential properties in proximity to the Proposed Development, if it is likely that visual change would materially affect residential amenity then a separate RVAA will be undertaken. Construction and decommissioning impacts would be for short duration so scoped out of the RVAA.
Residential Visual Amenity Assessment for properties beyond 250 m from the Proposed Development.	Scoped out throughout construction, operation and decommissioning.	The Proposed Development would comprise structures that are relatively low height (up to 3.5 m), and which are not located in close proximity to residential properties. Views of the Proposed Development beyond 250 m would be unlikely to result in visual change that would materially affect residential amenity.

## 12.7 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTIES

### Assumptions

- 12.7.2 It is assumed all current vegetation (excluding any removed for construction/ operation of the Proposed Development) within the Site boundary and outside, such as field boundaries, would be maintained as the baseline condition for the lifespan of the Proposed Development.
- 12.7.3 Any proposed mitigation planting would be subject to a long-term management and maintenance regime for the lifespan of the Proposed Development and secured through a Landscape and Ecological Management Plan (LEMP).
- 12.7.4 Unless noted otherwise in the assessment, the year 1 effects reported exclude any allowance for mitigation by planting, unless advance planting has been carried, but will include allowance for screening measures such as soil bunds, fencing and or walling as appropriate.
- 12.7.5 The assessment will assume the worst-case development with the maximum heights and massing as set out in **Chapter 3**. The design set for scoping may evolve and the LVIA will be reviewed and amendment to the scope and Study Area where required.
- 12.7.6 Additional key assumptions or limitations that are made during the assessment will be set out in the body Landscape and Visual chapter of the ES chapter.
- 12.7.7 It is assumed that any PRoWs that cross the Site within the Site Boundary will be either temporarily closed or diverted during the construction phase and will therefore be scoped out of the construction assessment.

### Limitations

- 12.7.8 All field work will be undertaken from publicly accessible locations.
- 12.7.9 Assessment of effects on residential receptors will be undertaken using professional judgement and supported by viewpoints near or of similar view to that from residential properties, aided by the ZTV's, aerial photography and LVIA figures.

## Uncertainties

- 12.7.10 The precise locations of the substations and chosen cable corridor are not known at this stage; however, once they are confirmed, the ZTV and (where required) Study Area will be amended to capture any additional the potential likely sensitive receptors subject to potentially significant effects.
- 12.7.11 The final layout, siting and heights of the solar PV arrays, sub-stations and associated structures are yet to be agreed. The LVIA Study Area, and landscape and visual receptors will be reviewed as the Proposed Development evolves, informed by further desktop review, refinement and ground-truthing of ZTVs as well as professional judgement.

## 13. NOISE AND VIBRATION

### 13.1 INTRODUCTION

- 13.1.1 This chapter outlines the scope of the noise and vibration assessment for the Proposed Development. It details the baseline conditions, potential effects, mitigation measures, and assessment methodology. The potential effects of the Proposed Development have been identified through a technical review of the current design, construction, operational (including maintenance), and decommissioning aspects of the Proposed Development and how these effects may interact with the acoustic character of the area.
- 13.1.2 It will also outline the proposed approach to the technical scope of this chapter in the EIA and determine the specific elements that are scoped in and out of each assessment, aligning with the requirements of the EIA regulations.

### 13.2 TOPIC-SPECIFIC LEGISLATION, POLICY AND GUIDANCE

- 13.2.1 This section identifies the relevant legislation, planning policy and guidance that underpin the scoping of the EIA. This is inclusive of national legislation as well as local policy and guidance relating to Cultural Heritage. The following legislation, policy and guidance has been considered when preparing this Scoping Report.

#### Legislation

##### ***Environmental Protection Act 1990***

- 13.2.2 The Environmental Protection Act s. 79(g)<sup>164</sup> defines noise emitted from premises so as to be prejudicial to health or a nuisance as constituting a statutory nuisance. According to s. 79(ga), it also constitutes a statutory nuisance noise that is prejudicial to health or a nuisance and is emitted from or caused by a vehicle, machinery or equipment in a street.
- 13.2.3 A local authority can take legal action to prevent or stop a noise from fixed premises, including land, which it considers prejudicial to health or a nuisance. Any new noise source of that nature has the potential to be a statutory nuisance. In England and Wales, a local authority's power is primarily to be found in s. 80 of the Environmental Protection Act. As referenced in British Standard BS 8233 section F.3, the main principles established under the Act are as follows:

- There is no prescribed level above which a noise automatically becomes a statutory nuisance. Each case is considered on its merits taking account of a range of factors, including the likely reaction of a typical person; and
- Where the noisemaker is operating from industrial, trade or business premises, it is a defence to show that the best practicable means to control noise have been used.

13.2.4 Best practicable means are to be interpreted (s. 79(9) of the Act) as follows:

- “Practicable” means reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications;
- The means to be employed include the design, installation, maintenance and manner and periods of operation of plant and machinery, and the design, construction and maintenance of buildings and structures;
- The test is to apply only so far as compatible with any duty imposed by law;
- The test is to apply only so far as compatible with safety and safe working conditions, and with the exigencies of any emergency or unforeseeable circumstances; and,
- in circumstances where a code of practice under section 71 of the Control of Pollution Act 1974 (noise minimisation) is applicable, regard shall also be had to guidance given in it.

### ***Control of Pollution Act 1974***

13.2.5 Section 70 of the Control of Pollution Act 1974<sup>165</sup> deals with the control of noise on construction sites. Section 61 allows for a person who intends to carry out construction works to apply to the local authority for consent to follow their own noise management plan. Section 71 refers to the approval of codes of practice for the purpose of giving guidance on appropriate methods (including the use of specified types of plant or machinery) for minimising noise.

13.2.6 Section 72 defines best practicable means, with practicable meaning reasonably practicable having regard among other things to local conditions and circumstances, to the current state of technical knowledge and to the financial implications. The means to be

employed include the design, installation, maintenance and manner and periods of operation of plant and machinery, and the design, construction and maintenance of buildings and acoustic structures. The said test is to apply only so far as compatible with safety and safe working conditions, and with the exigencies of any emergency or unforeseeable circumstances.

***The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015***

13.2.7 The order endorses British Standard BS 5228:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites, Part 1: Noise and Part 2: Vibration, as the relevant code of practice for providing guidance on suitable methods for reducing noise (including the use of specified types of equipment or machinery), in accordance with section 71 of the Control of Pollution Act 1974.

**Policy**

***National Planning Policy***

13.2.8 National Policy Statements (NPS) are the primary policy basis for NSIP development. The Overarching National Policy Statement for Energy (EN-1) (NPS EN-1) and the National Policy Statement for Renewable Energy (EN-3) (NPS EN-3) are relevant to the noise element of the Proposed Development:

- NPS EN-1 paragraph 4.7 and NPS EN-3 paragraph 2.5 emphasise the importance of good design in energy projects to achieve policy objectives. Good design, including siting and suitable technologies, can mitigate impacts like noise. Applicants should consider this from early project stages;
- NPS EN-1 paragraph 4.15 refers to common law nuisance and statutory nuisance. Such authority is conferred only for the purpose of providing a defence in any civil or criminal proceedings for nuisance. This would include a defence for proceedings for nuisance under Part III of the Environmental Protection Act 1990 (EPA) (statutory nuisance) but only to the extent that the nuisance is the inevitable consequence of what has been authorised. The defence does not extinguish the local authority's duties under Part III of the EPA 1990 to inspect its area and take

reasonable steps to investigate complaints of statutory nuisance and to serve an abatement notice where satisfied of its existence, likely occurrence or recurrence. The defence is not intended to extend to proceedings where the matter is “*prejudicial to health*” and not a nuisance; and

- NPS EN-1 paragraph 5.12 defines the potential noise and vibration effects arising from energy projects, whereas NPS EN-3 paragraph 2.10 defines the potential noise and vibration effects arising from solar photovoltaic generation. Excessive noise can have wide-ranging impacts on the quality of human life and health such as annoyance, sleep disturbance, cardiovascular disease and mental ill-health. It can also have an impact on the environment and the use and enjoyment of areas of value such as quiet places and areas with high landscape quality. A development must be undertaken in accordance with statutory requirements for noise. Due regard must be given to the relevant sections of the Noise Policy Statement for England, the NPPF, and the government’s associated planning guidance on noise.

13.2.9 The National Policy Statement for Electricity Networks Infrastructure (NPS EN-5) addresses noise from substations and high voltage overhead lines. However, the Proposed Development involves only an underground cable and excludes these components.

### **Noise Policy Statement for England**

13.2.10 The Noise Policy Statement for England’s vision is to promote good health and a good quality of life through the effective management and control of environmental noise within the context of Government policy on sustainable development. Its aims are to:

- Avoid significant adverse impacts on health and quality of life;
- Mitigate and minimise adverse impacts on health and quality of life; and
- Where possible, contribute to the improvement of health and quality of life.

13.2.11 The sustainable development context includes the following guiding principles:

- Ensuring a strong healthy and just society;
- Using sound science responsibly;

- Living within environmental limits;
- Achieving a sustainable economy; and
- Promoting good governance.

### ***National Planning Policy Framework (updated February 2025)***

13.2.12 The NPPF sets out the government's planning policies for England and how these are expected to be applied. Planning Practice Guidance (PPG) advises on how planning can manage potential noise impacts in new development.

13.2.13 Of particular relevance to noise and vibration are::

- Paragraph 187 (e) which requires to prevent unacceptable levels of noise pollution on new and existing development (NPPF paragraph 187);
- Paragraph 198 (a) and (b) which requires that planning policies and decisions ensure that *"new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*
  - a. Mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life; and*
  - b. Identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason."*

### ***Planning Policy Guidance***

13.2.14 Planning Policy Guidance (PPG) provides further details on how to establish whether noise is likely to be of concern, by providing the following noise exposure hierarchy table (**Table 13.1**).

**Table 13.1** Noise exposure hierarchy table (PPG on noise – paragraph 005)

Response	Examples of outcome	Increasing effect level	Action
<b>No Observed Effect Level</b>			

Response	Examples of outcome	Increasing effect level	Action
Not present	No Effect.	No Observed Effect	No specific measures required
<b>No Observed Adverse Effect Level</b>			
Present and not intrusive	Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response. Can slightly affect the acoustic character of the area but not such that there is a change in the quality of life.	No Observed Adverse Effect	No specific measures required
<b>Lowest Observed Adverse Effect Level</b>			
Present and intrusive	Noise can be heard and causes small changes in behaviour, attitude or other physiological response, e.g. turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a small actual or perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
<b>Significant Observed Adverse Effect Level</b>			
Present and disruptive	The noise causes a material change in behaviour, attitude or other physiological response, e.g. avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep.	Significant Observed Adverse Effect	Avoid

Response	Examples of outcome	Increasing effect level	Action
	Quality of life diminished due to change in acoustic character of the area.		
Present and very disruptive	Extensive and regular changes in behaviour, attitude or other physiological response and/or an inability to mitigate effect of noise leading to psychological stress, e.g. regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, e.g. auditory and non-auditory.	Unacceptable Adverse Effect	Prevent

13.2.15 The PPG states that local planning authorities should take account of the acoustic environment and in doing so consider:

- *"Whether or not a significant adverse effect is occurring or likely to occur;*
- *Whether or not an adverse effect is occurring or likely to occur; and*
- *Whether or not a good standard of amenity can be achieved."*

## Guidance

### **BS 5228 Code of practice for noise and vibration control on construction and open sites**

13.2.16 The ABC method described in British Standard BS 5228-1:2009+A1:2014 will be used to define the LOAEL for construction noise. The thresholds for a Category C area will be used as the SOAEL – see **Table 13.2**.

**Table 13.2 BS 5228-1 ABC method and LOAEL and SOAEL values for construction noise**

Assessment category and threshold value period	Threshold value, in decibels (dB $L_{Aeq,T}$ )		
	Category A <sup>A)</sup> (LOAEL)	Category B <sup>B)</sup> (LOAEL)	Category C <sup>C)</sup> (SOAEL)
Daytime (07:00-19:00) and Saturdays (07:00-13:00)	65	70	75
Evenings and weekends D)	55	60	65
Night-time (23:00-07:00)	45	50	55

Note 1: A potential significant effect is indicated if the  $L_{Aeq,T}$  noise level arising from the Site exceeds the threshold level for the category appropriate to the ambient noise level.

Note 2: If the ambient noise level exceeds the Category C threshold values given in the table (i.e. the ambient noise levels is higher than the above values), then a potential significant effects is indicated if the total  $L_{Aeq,T}$  noise level for the period increases by more than 3 dB due to Site noise.

Note 3: Applied to residential receptors only.

<sup>A)</sup> Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

<sup>B)</sup> Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.

<sup>C)</sup> Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

<sup>D)</sup> 19:00-23:00 weekdays, 13:00-23:00 Saturdays and 07:00-23:00 Sundays

## **BS 4142 Methods for rating and assessing industrial and commercial sound**

### ***Sound level definitions***

13.2.17 British Standard BS 4142:2014+A1:2019 provides a method for rating and assessing industrial and commercial sound. This standard is widely used in the UK to assess the impact of sound from some industrial and commercial sources on humans in residential premises. The Environment Agency has published guidance on its implementation in the 'Noise and vibration management: environmental permits' document dated January 2022 and in the

'Method implementation document (MID) for BS 4142' of December 2023. The Association of Noise Consultants also published a Technical Note on the standard in March 2020.

13.2.18 The standard is designed to consider the effects of industrial and commercial sound giving appropriate consideration to its character and level. To do so, it defines how to determine the ambient, background and residual sound levels and how to derive a rating level for the sources of sound being assessed, which is calculated from the specific sound level plus any character corrections. Thus, the following parameters are used:

- The specific sound level,  $L_{Aeq,Tr}$ , is the sound pressure level produced by the specific sound source at assessment location over a given reference time interval;
- The residual sound level,  $L_{Aeq,T}$ , is the sound pressure level at the assessment location when the specific sound source is not operational;
- The ambient sound level,  $L_{Aeq,T}$ , is the totally encompassing sound level in a given situation at a given time, composed of sound from many sources near and afar. The ambient sound comprises the residual sound and the specific sound when present;
- The background sound level,  $LA_{90,T}$ , is the sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval; and
- The rating level,  $L_{Ar,Tr}$ , is the specific sound level plus any adjustment for the characteristic features of the specific sound which will attract attention, which are tonality, impulsivity, intermittency and other sound characteristics.

13.2.19 The significance of sound of an industrial or commercial nature depends on both:

1. The margin by which the rating level of the specific sound source exceeds the background sound level; and
2. The context in which the sound occurs.

***Significance of sound: sound level evaluation***

13.2.20 An initial estimate of the impact of the specific sound is obtained by subtracting the measured background sound level from the rating level and considering the following:

- Typically, the greater this difference, the greater the magnitude of the impact;
- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

***Significance of sound: the context***

13.2.21 The context in which sound occurs includes the following:

- The absolute level of sound;
- The character and level of the residual sound compared to the character and level of the specific sound; and
- The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and outdoor acoustic conditions, such as:
  - Façade insulation treatment,
  - Ventilation and/or cooling that will reduce the need to have windows open so as to provide rapid or purge ventilation, and
  - Acoustic screening.

***BS8233 Guidance on sound insulation and noise reduction for buildings***

13.2.22 In relation to indoor acoustic conditions, British Standard BS 8233:2014 provides guidance sound levels for suitable sleeping/resting conditions within dwellings for most people.

13.2.23 When external noise affects the internal acoustic environment from sources without a specific character, BS 8233 states that it is

desirable that the internal ambient noise levels do not exceed the guideline values in **Table 13.3** below.

**Table 13.3 Indoor ambient noise levels for dwellings (BS 8233:2014)**

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16h}$	---
Dining	Dining room/area	40 dB $L_{Aeq,16h}$	---
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16h}$	30 dB $L_{Aeq,8h}$

### 13.3 PRELIMINARY BASELINE CONDITIONS

#### Data Sources

13.3.2 The ES will present detailed information on the noise and vibration effects of the Proposed Development following the review and analysis of the following data sources:

- The results of noise surveys carried out to determine the existing acoustic character of the area;
- Ordnance Survey (OS) mapping, including AddressBase Premium, as well as aerial photography available on the internet to identify sensitive receptors in the area;
- England Noise and Air Quality Viewer, which shows road and railway noise level maps and the associated noise Important Areas (IAs) – 'hotspot' locations identified by Defra as requiring further investigation. Air Quality Management Areas (AQMAs) are also displayed – areas designated by local authorities and requiring further pollution reduction measures;
- Topography of the Site and surrounding area. The topography of the surrounding area will be available from Defra LiDAR open data;
- BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014 for the noise and vibration levels arising from typical construction plant; and

- VDI 3739 Characteristic noise emission values of technical sound sources – Transformers, NEMA ST 20-2021 Dry-Type Transformers for General Applications and AS/NZS 60076.10.1:2023 Power transformers, Part 10.1: Determination of sound levels – Application guide (IEC 60076-10-1:2016 (ED. 2.1) MOD) for typical sound levels generated by transformers.

### Proposed Study Area

13.3.3 The following Study Area is proposed depending on the activity:

- An area within 50 m of construction traffic routes between major roads and the Site access;
- An area within 100 m of construction works generating relevant vibration, such as piling, including construction works not on the Site but including the Cable Corridor Options;
- An area within 300 m of construction works for potential effects of construction noise, including construction works not only on the Site including along the Cable Corridor Options; and
- An initial area within 500 m of proposed Onsite Substations for operational noise generated by transformers and other sound emitting elements of a substation. This initial area can be modified in line with the results of the noise survey to define the background sound levels of the area that it is planned at the time of writing.

13.3.4 **Figure 13.1** to **13.4** show the noise and vibration Study Areas for areas HG1, HG2, HG3 and the Cable Corridor Options respectively.

### Baseline Conditions

13.3.5 At the time of writing, a noise survey is being conducted on Site to define the acoustic character of the area, and specifically the background sound levels of the area. **Figure 13.5** shows the monitoring locations where the survey is planned or has been completed. Engagement with the local Environmental Health Departments is being carried out to secure agreement on the monitoring locations.

13.3.6 The A120 is the main transport infrastructure in the area. It runs next to the north boundary of HG1, 300 m to the north of HG2 and 500 m to the north of HG3. The Proposed Development is located approximately 12 km to the east of London Stansted Airport, but it is

not within its noise footprint which is in the northeast to southwest direction.

## HG1

13.3.7 **Figure 13.1** shows the Study Area for section HG1. The Study Area contains some small settlements to the east around Little Common and to the south around Bartholomew Green and Molehill Green. There are also some scattered properties such as Lord Draper's Farm. The northern section of HG1 is dominated by road traffic noise arising from the A120. In the southern section of HG1, the A120 is not so prominent although still audible during certain periods.

## HG2

13.3.8 **Figure 13.2** shows the Study Area for section HG2. The Study Area is crossed in a north to south direction by the River Ter. The north boundary is limited by the Flitch Way, a former railway line reconverted to a Public Right of Way (Bridleway 45 Rayne and Bridleway 130 Felsted). The number of sensitive receptors within the Study Area is limited to a small number of isolated properties to the north and small settlement around Frenches Green at the south boundary.

## HG3

13.3.9 **Figure 13.3** shows the Study Area for section HG3. The study area contains a higher number of sensitive receptors, concentrated in the villages of Gransmore Green to the north, Watch House Green to the west and Bannister Green to the south. The northern half of HG3 is dominated by road traffic noise arising from the A120, which is not so prominent in the southern half.

## Cable Corridor Options

13.3.10 **Figure 13.4** shows the Study Area for the Cable Corridor Options. The routes closer to the A120 (which runs in an east to west direction) and the A131 (which runs in a north to south direction) are dominated by road traffic noise. Cable Option 1 is closest to these two major roads and is the route where baseline sound levels will be the highest. To the west of the A131, Cable Options 2 and 3 run in close proximity to Molehill Green and Willows Green through a quieter area than Cable Option 2.

- 13.3.11 To the east of the A131 and up to Black Notley, Cable Options 1 and 3 run along an area closer to the A120 but also closer to sensitive receptors. Conversely, Cable Option 3 runs further south in an area which is likely to be quieter, and close to a lower number of potential noise sensitive receptors.
- 13.3.12 Between Black Notley and Tye Green, Cable Options 1, 2 and 3 run through a similar acoustic environment dominated by road traffic noise and away from sensitive receptors. Cable Option 4 runs through Black Notley and the east edge of Tye Green, which are likely to have some neighbourhood noise, particularly during the daytime. All Cable Corridor Options cross the railway line between Braintree Freeport and Cressing train stations, which is expected to introduce occasional train passes to the acoustic environment of the area.
- 13.3.13 The above acoustic environments are being confirmed at present with noise surveys in the area.

## 13.4 TECHNICAL SCOPE AND APPROACH TO EIA

### Level of Assessment

- 13.4.2 The level of assessment has been determined using the principles of the guidance and criteria set out in NPS EN-3 paragraph 2.10 (for construction noise including construction traffic noise), NPS EN-1 paragraph 5.12, NPSE, NPPF and PPG on noise.

### Assessment of Effect Significance

- 13.4.3 The assessment of effects will be based on the magnitude of effect and the sensitivity of receptors, which will be based on the guidance and criteria stated in the “*Level of Assessment*” paragraph above and the guidance stated in Section 13.2 above.

### Determining the Significance of Effects

- 13.4.4 PPG defines the effects of sounds at the Lowest Observable Adverse Effect Level (LOAEL) and at the Significant Observable Adverse Effect Level (SOAEL) – see **Table 13.1** above. The LOAEL and the SOAEL are defined for each phase and activity. Perceptible changes above the SOAEL are likely to result in significant effects. Perceptible changes between the LOAEL and SOAEL are unlikely to result in significant effects if they are mitigated and minimised. Where the output is uncertain the determination of significant effects will be

based on professional judgement aligned with Schedule 3 criteria from the EIA Regulations, including the spatial extent of the impact defined by the size of the affected population as well as the duration and magnitude of impact.

## Construction Noise

13.4.5 **Table 13.2** above defines the LOAEL and SOAEL for construction noise.

## Operational Noise

13.4.6 In line with BS 4142 (as introduced in section 13.2 above), where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context. A rating level exceeding the background sound level by 10 dB is an indication of a significant adverse impact, depending on the context. Therefore, rating level exceedances of 0 to 10 dB above the background sound level are considered to roughly correspond to the LOAEL and SOAEL respectively, depending on the context.

13.4.7 In relation to the context (section 13.2 above), the Proposed Development is set in a rural area. The assessment of operational noise should take into context the absolute noise level, because the background and rating sound levels in the rural areas surrounding the proposed development can be particularly low at times. Section 11.1 of BS 4142 states that *"Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night."*

13.4.8 The ANC Guide to BS 4142 suggests that it would not be unreasonable to consider that very low background sound levels are less than about 30 dB  $L_{A90,T}$  and low rating levels as less than about 35 dB  $L_{Ar,Tr}$ . The latter is considered to be the minimum LOAEL value at day and night.

13.4.9 BS 8233:2014 provides guidance levels for internal noise within dwellings, stating that indoor noise levels of 30 dB  $L_{Aeq,T}$  should be achieved for good sleeping conditions at night. As residents are likely to be inside their properties during the night-time, and given a reasonable worst-case scenario of a partially open window providing

an insulation of 15 dB from outdoor noise sources (BS 8233 Annex G.1), an external SOAEL of 45 dB  $L_{Ar,Tr}$  has been adopted for the night-time.

- 13.4.10 It should be noted that the descriptor selected to define the minimum SOAEL is  $L_{Ar,Tr}$ , since the guidance levels proposed in BS 8233 are assumed to be free of any sound characteristics – and therefore  $L_{Ar,Tr}$  allows to account for such characteristics.
- 13.4.11 The level difference through a partially open window for ventilation can vary depending on the window type and the frequency content of the external noise. It is recommended to assess each window type in conjunction with the frequency content of the external noise should greater detail be required.
- 13.4.12 Therefore an outdoor level of 45 dB  $L_{Ar,Tr}$  should provide suitable ambient levels indoors to safeguard sleep at night. This rating level is taken as the minimum value for the SOAEL at night.
- 13.4.13 The daytime and night-time SOAEL levels hereby proposed have recently been used for similar facilities in Development Consent Orders and approved by the Secretary of State.
- 13.4.14 **Table 13.4** below shows the proposed LOAEL and SOAEL criteria to assess the operation of the proposed development.

**Table 13.4 Operational noise assessment criteria**

Effect level	Rating level (outdoors) at the receptor, $L_{Ar,Tr}$	
	Daytime	Night-time
LOAEL	0 dB above the typical background sound level ( $L_{A90,1h}$ ) with a minimum rating level of 35 dB $L_{Ar,Tr}$	0 dB above the typical background sound level ( $L_{A90,15min}$ ) with a minimum rating level of 35 dB $L_{Ar,Tr}$
SOAEL	10 dB above the typical background sound level ( $L_{A90,1h}$ ) * with a minimum rating level of 45 dB $L_{Ar,Tr}$	10 dB above the typical background sound level ( $L_{A90,15min}$ ) * with a minimum rating level of 45 dB $L_{Ar,Tr}$

\* It should be noted that a maximum rating level should be proposed for environments where background sound levels are high. Receptors located closer to the A120 are typically subject to higher background sound levels when road traffic noise is dominant and, therefore, a maximum sound level of 55 dB  $L_{Ar,Tr}$  will be considered for the SOAEL at those receptors.

## Decommissioning Noise

13.4.15 The same methodology proposed to determine the significance of effects during construction will be utilised for decommissioning.

## Construction Vibration

13.4.16 At the time of writing, the precise details on construction equipment and methods are under development, and it is therefore unknown whether works will be a source of vibration. Further details will be provided in the ES and will be assessed where relevant. Vibration sources may include piling or the use of vibratory rollers during road resurfacing. However, the latter are typically of short duration and most time due to its short duration do not give rise to significant adverse effects. **Table 13.5** presents the LOAEL and SOAEL for construction vibration, which are based on Table B.1 Guidance on effects of vibration levels and Table B.2 Transient vibration guide values for cosmetic damage of BS 5228-2.

**Table 13.5 Construction vibration LOAEL and SOAEL for all receptors**

Receptor	LOAEL	SOAEL
Occupied building	0.3 mm/s PPV	1.0 mm/s PPV

13.4.17 Other unoccupied buildings shall be assessed against cosmetic damage criteria.

13.4.18 Any particularly sensitive heritage buildings shall be assessed on a case by case basis.

## Operational Vibration

13.4.19 The Proposed Development is not expected to generate relevant levels of vibration at the sensitive receptors. If any vibratory source is identified at a later stage, the criteria set out in BS 6472-1 shall be used to assess its significance of effect.

13.4.20 Any particularly sensitive heritage buildings shall be assessed on a case by case basis.

## Decommissioning Vibration

13.4.21 The same methodology proposed to determine the significance of effects during construction will be utilised for decommissioning.

## 13.5 POTENTIAL SIGNIFICANT EFFECTS AND MITIGATION

### Construction

- 13.5.2 The construction of the Proposed Development may give rise to noise effects arising from construction traffic and noise and vibration effects arising from construction site works, including the construction of the Cable Corridor.
- 13.5.3 The Proposed Development will be mainly comprised of small structures that can be transported separately and constructed on-site, one or several compounds on-site for the delivery and assemblage of the necessary components. When this construction traffic passes through a minor road network, public perception of the construction phase of solar farms may derive mainly from the effects of traffic movements.
- 13.5.4 The construction of the Cable Corridor is likely to involve mainly trenching. However, it may also require breakers to break existing infrastructure which could be a source of impulsive sounds at times. Cable Option 1 is expected to have the highest baseline sound levels as it is closer to existing major road infrastructure – and therefore the noise impact is expected to be lower. Cable Option 3 is generally located in quieter areas, where the impact of construction noise may be more relevant – however potentially affecting a reduced number of noise sensitive receptors.
- 13.5.5 Construction noise may be felt as intrusive or disruptive depending on the acoustic character of the area. Construction noise will be felt as more prevalent at sensitive receptors currently in a quiet environment than at receptors already subject to high levels of noise.
- 13.5.6 Sensitive receptors within 100 m of construction vibration works may be subject to relevant vibration impacts. If relevant sources of vibration are present during construction such as piling, construction vibration will need to be mitigated in line with the code of practice in BS 5228-2.

### Operation

- 13.5.7 The Proposed Development will include solar PV modules, one or more substations and an underground power cable. The Onsite Substation includes items of plant such as the transformers that are relevant source of noise. The mitigation of any potential adverse or

significant adverse effects will be primarily planned through good design locating the substations (Onsite Substation and MV Stations) away from sensitive receptors. Once all the good design elements have been considered, noise barriers or specific mitigation for items of plant will be considered.

## Mitigation

13.5.8 Embedded mitigation measures will be incorporated into the design layout and principles of the Proposed Development as part of the good design process. The mitigation measures relating to noise and vibration which will be embedded into the design and construction of the Proposed Development, the latter being secured via the implementation of an outline Construction Environmental Management Plan (Outline CEMP) (noted in Appendix C, Commitments Register), and are detailed below:

- Construction works will take place during weekday daytime hours or Saturdays with no works during evening or night-time hours, Saturday after 1 pm or Sundays all day. Exceptions are made for safety or operational reasons when for instance a connection or task must be completed at less disruptive times for reasons unrelated to noise;
- Construction works will be carried out following best practicable means as per code of practice in BS 5228-1 for noise and BS 5228-2 for vibration;
- The various substations will be located away from sensitive receptors, preferably to a minimum distance of 300 m; and,
- The power cable will be designed to run underground, avoiding sound emissions during operation.

## 13.6 PROPOSED SCOPE OF THE EIA

13.6.1 On the basis of the likely sensitive receptors and aspects of the Proposed Development the potential effects proposed to be scoped into and out of the EIA for this topic are presented in **Table 13.6** and **Table 13.7**.

**Table 13.6 Elements of the Noise and Vibration Assessment  
Proposed to be Scoped In to the EIA**

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
<b>Construction Phase</b>		
Noise arising from construction traffic.	Scoped In.	Construction traffic may increase road traffic noise levels along certain minor roads. At times, this may be felt as intrusive or disruptive by sensitive receptors located along the construction traffic route.
Noise arising from construction works.	Scoped In.	Certain construction plant will generate noise which, at times, may be felt as intrusive or disruptive at sensitive receptors.
Vibration arising from construction works.	Scoped In.	Activities such as piling (if required) and vibratory resurfacing may generate vibration levels that, at times, may be felt as intrusive at sensitive receptors.
<b>Operational Phase</b>		
Noise arising from the operation of the substations.	Scoped In.	The substations will include items of plant such as transformers, which generate relevant sound, and if unmitigated may be felt as intrusive or disruptive at sensitive receptors.
<b>Decommissioning Phase</b>		
Noise arising from decommissioning traffic.	Scoped In.	Traffic during decommissioning may increase road traffic noise levels along certain minor roads. At times, this may be felt as intrusive or disruptive by sensitive receptors located

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
		along the traffic route for decommissioning.
Noise arising from decommissioning works.	Scoped In.	Certain plant to be used during decommissioning may generate noise which may at times be felt as intrusive or disruptive at sensitive receptors.
Vibration arising from decommissioning works.	Scoped In.	At the time of writing, it is uncertain whether vibratory activities will be required during decommissioning.

**Table 13.7 Elements of the Noise and Vibration Assessment  
Proposed to be Scoped Out of the EIA**

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
<b>Operational Phase</b>		
Noise arising from operational traffic.	Scoped Out.	The maintenance of the Proposed Development will require minimal presence of operatives on Site.
Noise arising from the underground cables.	Scoped Out.	The underground cables will be underground with unlikely relevant airborne noise emission.
Noise arising from the operation of the solar PV modules.	Scoped Out.	Noise emitted by solar PV modules is negligible even at short distance from the source.
Noise arising from the maintenance of the Proposed Development.	Scoped Out.	The potential noise levels arising from the maintenance of the Proposed Development is equivalent to any

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
		agricultural works present within the Site and mitigation measures will be implemented via an Outline OEMP, as per commitment <b>NV2</b> .
Vibration arising from the operation of the solar PV modules.	Scoped Out.	Solar PV modules do not constitute a source of vibration.
Vibration arising from the operation of the Onsite Substation.	Scoped Out.	The operation of the Onsite Substation is not considered to constitute a source of vibration.

## 13.7 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTIES

- 13.7.1 For the purposes of this assessment it is assumed that the proposed Onsite Substation will be an air insulated substation. The overview of baseline conditions and identification of receptors is based on desk-based studies at present. Following engagement with the local Environmental Health departments, further monitoring locations may be included for the noise survey,

## 14. SOCIO-ECONOMICS AND LAND USE

### 14.1 INTRODUCTION

- 14.1.1 This chapter identifies the potential effects on socio-economics and land use from the construction, operation and, where relevant, decommissioning activities of the Proposed Development. The potential effects of the Proposed Development have been identified through a technical review of the current design, construction, operational (including maintenance), and decommissioning aspects of the Proposed Development.
- 14.1.2 The socio-economics and land use impact assessment will consider potential effects of the Proposed Development on:
- Socio-economics, including employment, gross value added (GVA), and the wider economy of the Study Area; and
  - Land use, including the socio-economic implications of change in agricultural land use and impacts on Public Rights of Way (PRoW).

### 14.2 TOPIC-SPECIFIC LEGISLATION, POLICY AND GUIDANCE

#### **Legislation and Policy**

##### ***National Policy Statements***

- 14.2.2 National Policy Statements (NPS) are the primary policy basis for NSIP development. The following NPSs are relevant to this topic:
- The Overarching National Policy Statement for Energy (EN-1) which sets out the national policy for energy infrastructure. The ES will make specific reference to section 3.3 looking at the need for new nationally significant electricity infrastructure and the role of solar. Additionally, the assessment in the ES will draw on the impacts listed in sections 5.11 and 5.13 of the NPS, which set out the land use and socio-economic impacts respectively that should be considered.
  - The NPS for Renewable Energy Infrastructure (EN-3). The ES will make particular reference to paragraphs 2.10.29-2.10.34 and 2.10.41-2.10.25 which set out the impacts that should be considered on agricultural land and PRoW respectively.

## **National Planning Policy Framework**

14.2.3 The National Planning Policy Framework (NPPF), updated in December 2024, sets out the Government's planning policies for England, and provides a framework for sustainable development planning<sup>166</sup>. The NPPF has three overarching objectives: an economic objective, a social objective, and an environmental objective. The economic objective focuses on building a strong, responsive and competitive economy, including by identifying and coordinating the provision of infrastructure. The social objective focuses on supporting strong, vibrant and healthy communities.

14.2.4 In relation to agricultural land, Section 15 of the NPPF states that *"Planning policies and decisions should contribute to and enhance the natural and local environment by:*

*Recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land."*

## **UK Government industrial strategy**

14.2.5 The Government's Industrial Strategy White Paper<sup>167</sup> was published in 2017 and placed strong emphasis on Clean Growth as a pathway to increasing productivity. The Industrial Strategy transitioned into the Plan for Growth, 2021, which underlines the need for investment to meet net zero targets, and the opportunities for economic growth and job creation associated with low carbon goods and services<sup>168</sup>. More recently, there have been calls for an updated industrial strategy<sup>169</sup>.

## **Local Planning Policy**

14.2.6 The Braintree Local Plan<sup>170</sup> was adopted in July 2022. The following policies are relevant to the Proposed Development:

- Policy LPP 73 – Renewable Energy Schemes, which outlines the stance on renewable energy schemes – which will be encouraged where the benefit in terms of low carbon energy generating outweighs the harm to or loss of:
  - Natural landscape or other natural assets;
  - Landscape character;
  - Nature conservation;

- Best and most versatile agricultural land;
- Heritage assets, including the setting of heritage assets;
- Public rights of way;
- Air traffic and safety;
- Ministry of Defence operations; and
- Watercourse engineering and hydrological impact.
- Policy SP 5 – Employment, which aims to promote a strong, sustainable and diverse economy across North Essex.
- Policy LPP 52 – Layout and Design of Development, which outlines the Council’s stance on the criteria to be met in order to gain planning permission including:
  - The development proposed should not have a detrimental impact on the safety of highways or any other public right of way, and its users.

14.2.7 The adopted Uttlesford Local Plan (2005)<sup>171</sup> is the current local plan for Uttlesford until the draft local plan is adopted. There are a number of relevant policies outlined in the plan including:

- Policy E4 – Farm Diversification: Alternative use of Farmland. Which outlines the following criteria to be met:
  - Development includes proposals for landscape and nature conservation enhancement;
  - Development would not result in a significant increase in noise levels or other adverse impacts beyond the holding;
  - The continued viability and function of the agricultural holding would not be harmed; and
  - Development would not place unacceptable pressures on the surrounding rural road network.
- Policy ENV5 – Protection of Agricultural Land which outlines that the development of the best and most versatile agricultural land will only be permitted where opportunities have been assessed for accommodating development on previously developed sites or within existing development limits. Where development of agricultural land is required, developers should seek to use areas of poorer quality except where other sustainability considerations suggest otherwise.

- Policy ENV15 – Renewable Energy. Small scale renewable energy development schemes to meet local needs will be permitted if they do not adversely affect the character of sensitive landscapes, nature conservation interests or residential and recreational amenity.

14.2.8 The Uttlesford Draft Local Plan<sup>172</sup> has been submitted to the Secretary of State for independent examination. There are two policies in the draft local plan which are relevant to the Proposed Development:

- Core Policy 4: Meeting Business and Employment Needs; and
- Core Policy 25: Renewable Energy Infrastructure – which outlines the council’s support for renewable and low carbon energy generation proposals.

### ***Other local strategies***

14.2.9 Uttlesford Climate Crisis Strategy<sup>173</sup> outlines Uttlesford District Council’s proposed strategy in achieving net zero by 2030.

14.2.10 Braintree Climate Change Strategy<sup>174</sup> outlines Braintree District Council’s strategy in relation to declaring a climate emergency in May 2019 and how the Council will reduce its emissions and be carbon neutral by 2030.

## **14.3 PRELIMINARY BASELINE CONDITIONS**

### **Data Sources**

14.3.2 The ES will present detailed information on the socio-economic and land use baseline of the Proposed Development following the review and analysis of the following data sources:

- Census 2021;
- Annual Population Survey (APS);
- Business Register and Employment Survey (BRES);
- Indices of Multiple Deprivation (IMD); and
- Natural England Agricultural Land Classification (ALC) mapping, and the findings of site-specific ALC surveys.

### **Proposed Study Areas**

14.3.3 The Study Area for the assessment of socio-economic and land use effects is defined by the location of the Site, the location of receptors

that could be directly or indirectly impacted, the type of impacts that could occur, and the spatial scale at which effects could arise, hereafter referred to as the 'Socio-economic and Land Use Study Area'.

- 14.3.4 Socio-economic effects on jobs and GVA are likely to be realised at the level of the local and national economy. The Study Area for the assessment of socio-economic effects comprises the local authorities of Uttlesford District Council (UDC) and Braintree District Council (BDC), and England as a whole<sup>175</sup>, hereafter referred to as the 'Socio-economic Study Area'. This Study Area is illustrated on **Figure 14.1**.
- 14.3.5 Wider socio-economic and socio-cultural effects, such as knock-on effects on specific sectors of the economy or on demand for services, are unlikely to be significant at a national level but may be significant for local communities or at a local authority level. The Study Area for the assessment of wider socio-economic and socio-cultural effects is therefore the wards of Felsted and Stebbing (within the UDC local authority area), Rayne, Great Notley & Black Notley, and Silver End & Cressing (all within the BDC local authority area), as well as UDC and BDC, hereafter referred to as the 'Wider Socio-economic and Socio-cultural Study Area'.
- 14.3.6 Land use effects relate to the impact of the change in land use associated with the construction and operation of the Proposed Development and are specific to the Site. The Study Area for the assessment of land use effects is the land within the Site Boundary and Cable Corridor Options, hereafter referred to as the 'Land Use Study Area'.
- 14.3.7 Direct impacts on PRoW would also occur within the Site Boundary and Cable Corridor Options, however there could also be the potential for indirect effects for users of PRoW over a wider area. The assessment covers a Study Area that includes the land within the Site Boundary, the Cable Corridor Options, and an additional 1 km buffer zone beyond these boundaries, hereafter referred to as the 'PRoW Study Area'.
- 14.3.8 The proposed Study Areas are summarised in **Table 14.1**.

**Table 14.1 Summary of Study Areas for Each Aspect of the Assessment**

Aspect of assessment	Site Boundary and Cable Corridor Options	Site Boundary and Cable Corridor Options plus 1km	Ward	Local authority	England
Socio-economic				✓	✓
Wider socio-economic and Socio-cultural			✓	✓	
Public Rights of Way	✓	✓			
Land use	✓				

## Baseline Conditions

### Population and Age Profile

- 14.3.9 **Table 14.2** shows the age profile of the population of the Socio-economic Study Area. In general, across this Study Area there is a lower proportion of residents of working age than the national average. This is most pronounced in the ward of Felsted and Stebbing, where the proportion of residents of working age is around 5% lower than the England average. The exception is in Great Notley & Black Notley, where there is a higher than average proportion of residents of working age.
- 14.3.10 There is generally a higher than average proportion of residents aged 65 and over across the Socio-economic Study Area. This is again most pronounced in Felsted and Stebbing, where 24.6% of residents are in this age bracket, compared with 18.6% nationally. Great Notley & Black Notley is again an exception to this, with a lower than average proportion of older residents (15.3%).
- 14.3.11 The lower proportion of working aged residents recorded in parts of the Socio-economic Study Area, coupled with a higher rate of those aged over 65 years, could indicate some potential challenges such as

a shortage of labour and productivity constraints, or it may indicate a need for economic rejuvenation through attracting a younger working age population.

**Table 14.2 Population age profile, 2022**

Demographics (%)	Felsted & Stebbing	Uttlesford	Rayne	Great Notley & Black Notley	Silver End & Cressing	Braintree	England
Population aged 0-15	17.6%	19.3%	15.7%	20.6%	19.6%	18.4%	18.5%
Population of working age (16-64)	57.9%	60.0%	60.9%	64.1%	62.2%	60.9%	62.9%
Population aged over 65	24.6%	20.7%	23.3%	15.3%	18.2%	20.7%	18.6%

Source: ONS (2022), Population estimates – small area, England and Wales.

14.3.12 **Table 14.3** outlines the change in age profile over a five year period from 2017 to 2022. This shows that the population of people aged 65 and over has grown at a greater rate across the Socio-economic Study Area than the national average, indicating an ageing population. This is true in all parts of the Socio-economic Study Area, including Great Notley & Black Notley, where the proportion of people aged 65 and over is smaller than in other parts of this Study Area. The largest increase in the working age population was recorded in Silver End & Cressing, which recorded overall population growth of 11.6%, considerably higher than other parts of the Socio-economic Study Area and England as a whole.

**Table 14.3 Population Change, 2017-2022**

Demographics (%)	Felsted & Stebbing	Uttlesford	Rayne	Great Notley & Black Notley	Silver End & Cressing	Braintree	England
Population aged 0-15	-3.6%	4.4%	-11.0%	-7.8%	17.2%	1.2%	0.6%
Population of working age (16-64)	3.6%	5.9%	-0.7%	4.3%	19.5%	2.4%	2.1%
Population aged 65+	13.4%	13.7%	13.9%	7.2%	18.2%	8.4%	6.8%
Total Population	4.5%	7.1%	0.5%	1.9%	11.6%	3.4%	2.7%

Source: ONS (2024), Population estimates – small area (2021-based), by single year of age – England and Wales.

### Economic activity and employment

14.3.13 Gross Value Added (GVA) is an economic productivity metric which measures the contribution of a producer, sector or place to an economy. In 2022, total GVA in Felsted and Stebbing was £184.9m – which accounted for around 6.8% of the total GVA of the wider local authority area of Uttlesford. Total GVA in Rayne (£37.1m) accounted for a significantly lower proportion of the wider local authority area of Braintree, at just 0.9%, whereas Great Notley & Black Notley and Silver End & Cressing accounted for 6.4% and 5.8% of GVA in the local authority area.

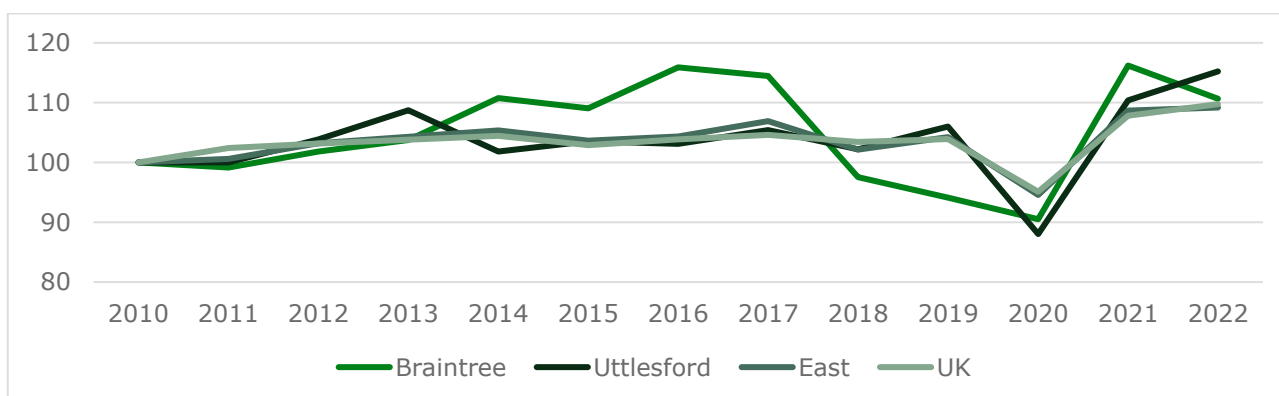
14.3.14 The areas of Uttlesford, Great Notley & Black Notley and Silver End & Cressing all have a similar GVA per head. However, there is a high degree of variation across the two ward areas with Felsted and Stebbing almost double that of Rayne. This could suggest that the residents in Felsted and Stebbing are employed in more productive sectors compared to Rayne.

**Table 14.4 GVA, 2022**

	<b>Felsted &amp; Stebbing</b>	<b>Uttlesford</b>	<b>Rayne</b>	<b>Great Notley &amp; Black Notley</b>	<b>Silver End &amp; Cressing</b>	<b>Braintree</b>	<b>UK</b>
Total GVA (£m)	£184.9	£2,703	£37.1	£263.4	£235.6	£4,096	£2,246,047
GVA per Head <sup>176</sup>	£33,918	£29,170	£17,447	£25,816	£27,115	£25,989	£33,227

Source: ONS 2024

14.3.15 **Plate 14.1** shows indexed growth in total GVA across the Wider Socio-economic and Socio-cultural Study Area, meaning that GVA has been normalized to the year 2010. The index shows that Braintree had significant GVA growth from 2013 to 2016, peaking at 115.9 in 2016. All areas experienced a significant drop in the index value in 2020, suggesting an impact from external factors, likely the COVID-19 pandemic. Braintree and Uttlesford were particularly affected, showing declines to 90.5 and 88.0, respectively. Recovery was evident across all areas outlined in the below figure post-2020, with jumps in indices seen in 2021 and 2022, indicating rebound effects as economies began to recover from lockdowns and restrictions.

**Plate 14.1 GVA, indexed at 100 (2010)**

Source: ONS (2024)

- 14.3.16 **Table 14.5** provides the most recent available labour market participation statistics from the APS. This data is not available at ward level in the APS and so data is presented for the local authorities of Braintree and Uttlesford, benchmarked against England.
- 14.3.17 The data shows considerable variation within the Wider Socio-economic and Socio-cultural Study Area. The rate of economic activity is below the national average in Braintree, at 73.2%, but considerably above average in Uttlesford, at 83.3%. This is reflected in the employment rate, which is below average in Braintree but above average in Uttlesford. Uttlesford also records an unemployment rate that is more than double the national average.

**Table 14.5 Economic Activity**

Economic Activity	Braintree	Uttlesford	England
Economic activity rate (aged 16-64)	73.2	83.3	78.8
Employment rate (aged 16-64)	72.4	77.2	75.7
Unemployment rate (aged 16-64)	n/a	7.3	3.9

Source: ONS (2024), APS, October 2023 – September 2024

### Employment by Sector

- 14.3.18 **Table 14.6** outlines the proportion of employment by sector in 2023, using APS data. Most notable is the transport and storage sector in Uttlesford which accounts for almost a quarter (23.6%) of all employment in the local authority. This is likely attributed to the presence of Stansted Airport and associated operations within the district. Employment in the accommodation and food services sector is also above average in Uttlesford, again likely reflecting the role of the airport in the local economy.
- 14.3.19 In Braintree, employment in the wholesale and retail sectors is above average, reflecting the strong local retail offering which includes Braintree Village Retail Outlet, George Yard Shopping Centre and Freeport Outlet Village. Employment in manufacturing, construction and motor trades is also above average in Braintree.

14.3.20 Employment in agriculture, forestry and fishing accounts for a relatively small proportion of total employment in Braintree and Uttlesford (2.3% and 2% respectively), but it is above the national average.

**Table 14.6 Employment by Sector**

Sector	Braintree	Uttlesford	England
Agriculture, forestry and fishing	2.3%	2.0%	1.2%
Mining, quarrying and utilities	1.3%	0.7%	1.1%
Manufacturing	9.3%	5.9%	7.3%
Construction	9.3%	5.9%	4.8%
Motor trades	3.2%	1.8%	1.7%
Wholesale	6.5%	3.4%	3.8%
Retail	9.3%	5.9%	8.2%
Transport and storage	5.6%	23.6%	5.1%
Accommodation and food services	6.5%	8.9%	7.8%
Information and communication	2.3%	1.8%	4.7%
Financial and insurance	2.8%	1.0%	3.4%
Property	2.3%	1.8%	2.1%
Professional, scientific and technical	7.4%	8.9%	9.7%
Business administration and support services	8.3%	11.8%	8.8%
Public administration and defence	2.8%	2.5%	4.2%
Education	7.4%	4.9%	8.3%
Health	9.3%	5.9%	13.3%
Arts, entertainment, recreation and other	4.2%	3.4%	4.6%

Source: ONS (2024), BRES 2023

## Occupation

14.3.21 **Table 14.7** outlines employment by occupational categories in Braintree, Uttlesford and England overall. Uttlesford has the highest proportion of employees employed as managers, directors and senior officials (20.5%), almost double the national average. However, it has smaller than average proportions of residents employed in professional and associate professional occupations. There is a higher proportion of skilled trade occupations in both Braintree and Uttlesford compared to both the region and England: this reflects the data outlined in Table 14.6 which suggests that Braintree has a strong manufacturing and construction sector, while Uttlesford is bolstered by Stansted Airport and associated transport and logistics operations.

**Table 14.7 Occupation**

	<b>Braintree</b>	<b>Uttlesford</b>	<b>England</b>
Managers, directors and senior officials	8.8%	20.5%	11.4%
Professional occupations	24%	15.9%	27.1%
Associate professional occupations	18.8%	10.9%	15.4%
Administrative and secretarial occupations	8.1%	9.9%	9.2%
Skilled trades occupations	15.9%	13.3%	8.5%
Caring, leisure and other service occupations	7.6%	13.1%	8.2%
Sales and customer service occupations	3.6%	n/a	6%
Process, plant and machine operatives	4.4%	6%	5.4%
Elementary occupations	8.7%	6.9%	8.7%

Source: ONS (2024), APS 2024

## Qualifications

14.3.22 **Table 14.8** displays the qualifications profile of residents in 2023. It shows that there is a disparity between the two local authorities in

terms of the highest level of qualifications (RQF4+), with Uttlesford having over half of all residents qualified to this level compared to Braintree which is below the national average.

**Table 14.8 Qualifications Profile**

	<b>Braintree</b>	<b>Uttlesford</b>	<b>England</b>
% with RQF4+ - aged 16-64	41.7%	54.3%	46.7%
% with RQF3+ - aged 16-64	64.7%	64.7%	67.4%
% with RQF2+ - aged 16-64	85.3%	87.4%	86.6%
% with RQF1+ - aged 16-64	92%	90%	89.2%
% with other qualifications (RQF) - aged 16-64	n/a	n/a	4.7%
% with no qualifications (RQF) - aged 16-64	4.5%	n/a	6.2%

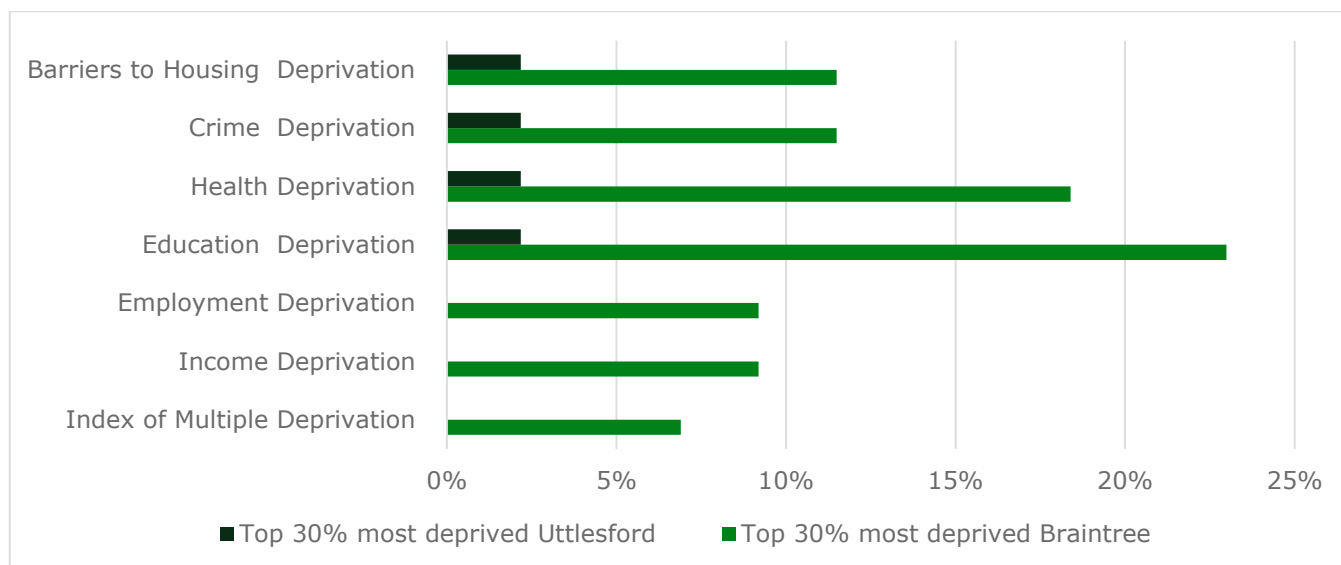
Source: ONS (2024), APS January 2023 – December 2023

## Deprivation

- 14.3.23 **Figure 14.2** shows that the Proposed Development is located in an area of generally low multiple deprivation. Across the Socio-economic Study Area there are some pockets of higher multiple deprivation in more urban areas, particularly in the towns of Braintree, Halstead, and Witham, all of which are in the Braintree local authority area.
- 14.3.24 The indices of multiple deprivation (IMD) data are aggregated up from Lower Super Output Area (LSOA) level. These are typically areas that contain a population size of between 1,000 and 3,000 people. The IMD data ranks all LSOAs in England from most deprived to least deprived across seven 'domains' of deprivation: income, employment, education, health, crime, and barriers to housing and living environment.
- 14.3.25 There are 87 LSOAs in Braintree and 46 in Uttlesford. **Plate 14.3** shows the proportion of LSOAs in each local authority area that is within the 30% most deprived in England against each domain. This shows that Braintree records higher levels of deprivation across all domains compared with Uttlesford. Close to a quarter (23%) of

LSOAs in Braintree are among the 30% most deprived in terms of education, and 18% are among the 30% most deprived in terms of health. Deprivation in Uttlesford is low across all domains.

### Plate 14.3 Deprivation



Source: IMD, 2019

## Land Use

14.3.26 Natural England ALC mapping shows that agricultural land within the Site Boundary is Grade 2 (very good) and Grade 3 (good to moderate) condition<sup>177</sup>. More detailed ALC information is provided for HG1, HG2 and HG3 below. Information is also provided regarding PRow within each section.

### HG1

14.3.27 ALC surveys undertaken for Drapers Farm (now referred to as HG1) in 2022 found that HG1 comprised 72.9 ha of Grade 3a agricultural land. Grade 3a agricultural land is considered Best and Most Versatile (BMV) agricultural land. Therefore, all of the land within HG1 is classified as BMV land.

14.3.28 **Figure 3.11** shows PRow within 1 km of the Site and Cable Corridor Options (the PRow Study Area). The following PRow are within HG1:

- Footpaths Felsted 21, 24 and 25;
- Footpaths Rayne 22 and 39; and
- Bridleway Rayne 45.

## **HG2**

14.3.29 ALC surveys for HG2 have not been undertaken at this stage, however given its proximity to the Site it is assumed that land within this area is also likely to be Grade 3a and therefore BMV agricultural land. Natural England ALC mapping for the area shows Grade 2 and Grade 3 land in this area, but does not differentiate between Grade 3a and Grade 3b<sup>178</sup>. Further ALC surveys will be undertaken to confirm the ALC grade of HG2.

14.3.30 The following PRow are within HG2:

- Footpaths Felsted 19, 21, 25 and 115;
- Bridleways Felsted 20 and 130; and
- Bridleway Rayne 44.

## **HG3**

14.3.31 ALC surveys undertaken for Lord Rayleighs Farm (now referred to as HG3) in 2022 found that land within the Rayleighs Farm comprised 111.9 ha of Grade 3a agricultural land. Therefore, all of the land within HG3 is classified as BMV land.

14.3.32 The following PRow are within HG3:

- Footpaths Felsted 8, 15, 16, 17, 18, 45 and 115; and
- Bridleway Felsted 52 and 130.

## **Cable Corridor Options**

14.3.33 ALC surveys for the Cable Corridor Options have not been undertaken at this stage, however Natural England ALC mapping for the area shows Grade 2 and Grade 3 land in this area<sup>179</sup>.

14.3.34 The following PRow intersect with the Cable Corridor Options:

- Footpaths:
  - Great And Little Leighs 3, 4, 72
  - Rayne 22, 23, 38
  - Felsted 35, 122, 105, 104, 41, 40, 125, 42, 36, 123
  - Black Notley 2, 25, 5, 20, 22, 6, 24, 1, 16, 4, 8
  - Cressing 35, 34, 38, 16, 20, 31, 21
- Bridleways:
  - Felsted 127, 43

- Great Notley 27
- Black Notley 7
- Byways
  - Felsted 101
  - Black Notley 3

## 14.4 TECHNICAL SCOPE AND APPROACH TO EIA

### Level of Assessment

14.4.2 The level of assessment has been determined using professional judgement and established industry precedent. The socio-economic assessment and land use assessment will consider the construction and operational phases of the Proposed Development and, where relevant, the decommissioning phase.

### Assessment of Effect Significance

14.4.3 The significance of effects will be determined based on the sensitivity of the receptor and the magnitude of the impact.

14.4.4 As there is no definitive guidance or methodology for the assessment of socio-economic effects, the sensitivity of receptors will be assessed using the criteria set out in **Table 14.9**, which have been developed based on established industry best practice and professional judgement.

**Table 14.9 Sensitivity Criteria**

Sensitivity of receptor	Criteria
High	<ul style="list-style-type: none"> <li>• There is no or low availability of labour and skills in the local workforce, for example as a result of very low unemployment rates. Therefore, the Proposed Development would lead to labour market pressure and distortions (i.e. skills and capacity shortages, import of labour, wage inflation).</li> <li>• A receptor is of high socio-economic or land use value. It is of importance at a national or international level and has little capacity to absorb change without fundamentally altering its present character.</li> </ul>

Sensitivity of receptor	Criteria
	<ul style="list-style-type: none"> <li>A receptor possesses priority in national socio-economic or land use strategy / policy.</li> </ul>
Moderate	<ul style="list-style-type: none"> <li>The area has a constrained supply of labour and skills. Therefore, the Proposed Development may lead to labour market pressure and distortions.</li> <li>A receptor is of moderate socio-economic or land use value. It is of importance as a national level and has some capacity to absorb change without fundamentally altering its present character.</li> <li>A receptor possesses priority in local socio-economic or land use strategy / policy.</li> </ul>
Low	<ul style="list-style-type: none"> <li>A receptor is of moderate socio-economic or land use value. It is of importance at a national/local level and can absorb change without fundamentally altering its present character.</li> <li>A receptor is not identified as a priority in local socio-economic or land use strategy / policy.</li> </ul>
Negligible	<ul style="list-style-type: none"> <li>A receptor is able to absorb change and is of little socio-economic or land use value.</li> <li>A receptor is not identified as a priority in local socio-economic or land use strategy / policy.</li> </ul>

14.4.5 The magnitude of impacts will be assessed using the criteria set out in **Table 14.10**, which have been developed based on established industry best practice and professional judgement. Magnitude is a function of the likely scale of an impact, its duration, nature and reversibility.

**Table 14.10 Magnitude Criteria**

Magnitude of impact	Criteria
Major	<ul style="list-style-type: none"> <li>Total loss or major alteration (beneficial or adverse) of a socio-economic or land use receptor.</li> <li>This could include permanent closure or severe effect upon the viability of a business, community facility or</li> </ul>

Magnitude of impact	Criteria
	public service; closure or restricted access to PRow; or permanent loss of more than 20 ha of BMV agricultural land.
Moderate	<ul style="list-style-type: none"> <li>• Loss of, or alteration to (beneficial or adverse), one or more key elements of a socio-economic or land use receptor's baseline value.</li> <li>• This could include a moderate change to business revenues with potential job losses but no threat to the viability of the business; moderate change to the function or service of community facilities and public services; a moderate reduction in access to recreational PRow; or permanent loss of between 1 and 20 ha of BMV agricultural land.</li> </ul>
Minor	<ul style="list-style-type: none"> <li>• Slight alteration (beneficial or adverse) of the socio-economic or land use receptor's baseline value.</li> <li>• This could include a low change to business revenues with isolated job losses but no threat to the viability of the business; low change to the function or service of community facilities and public services; or low reduction in access to recreational PRow; or temporary loss of BMV agricultural land.</li> </ul>
Negligible	<ul style="list-style-type: none"> <li>• Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation.</li> </ul>

## Determining the Significance of Effects

14.4.6 The significance of effect is a product of the receptor or resource's sensitivity and magnitude of impact. The significance of effect can be either significant (major or moderate effects) or not significant (minor or negligible effects) as outlined in **Chapter 6**, Section 6.5 and **Table 6.1**.

## 14.5 POTENTIAL SIGNIFICANT EFFECTS AND MITIGATION

### Construction/Decommissioning

14.5.2 Potential effects that are scoped in for assessment during the construction and decommissioning phases are:

- Employment and supply chain effects. The construction of the Proposed Development will create jobs directly and in the supply chain which could have the potential for a significant effect within the local labour market;
- GVA effects. The construction of the Proposed Development will generate GVA in the local, regional and national economy which could have the potential for a significant effect within the local economy;
- Wider socio-economic effects. The construction of the Proposed Development could have wider and knock-on socio-economic effects including structural economic change or disruption to established local industries, which could have the potential for a significant effect within the local economy;
- Socio-cultural effects. Changes to local demographics and the local environment associated with construction activity and the presence of an incoming construction workforce could result in increased demand for social infrastructure and changes in community identity and way of life. This could have the potential for significant effects for local communities;
- Land use effects. The construction of the Proposed Development will result in temporary changes in land use within the Site Boundary which could result in effects for the agricultural sector and food security; and
- Direct and indirect effects for users of PRoW. Direct impacts on PRoW, including temporary or permanent closure or diversion, could have the potential for significant effects for users of these resources. There could also be effects associated with impacts on amenity for PRoW users.

14.5.3 It is assumed that decommissioning effects will be comparable to, and no worse than, construction effects and are considered as part of the construction assessment.

## Operation

14.5.4 Potential effects that are scoped in for further assessment during the operational phase are:

- Employment and supply chain effects. The operation of the Proposed Development will create jobs directly and in the supply

chain which could have the potential for a significant effect within the local labour market;

- GVA effects. The operation of the Proposed Development will generate GVA which could have the potential for a significant effect within the local economy; and
- Indirect effects for users of PRoW. There could be effects associated with impacts on amenity for PRoW users, that would be distinct from the effects that could arise during construction.

14.5.5 Effects arising during construction that would continue into operation, including land use effects, are assessed as construction effects.

## Mitigation

14.5.6 Embedded mitigation measures will be incorporated into the design layout and principles of the Proposed Development as part of the design process.

14.5.7 An Outline Public Rights of Way Management Plan will be produced which will set out the measures that will be implemented to manage any proposed diversions of PRoW that may be necessary during construction or decommissioning.

14.5.8 Measures set out in the Outline Environment Management Plan (OEMP), Outline Construction Traffic Management Plan (OCTMP) and CEMP will reduce the potential impacts of construction on aspects including noise, air quality, and local transport networks, and therefore reduce the potential for indirect effects on users of PRoW and other community receptors.

## 14.6 PROPOSED SCOPE OF THE EIA

14.6.1 On the basis of the likely sensitive receptors and aspects of the Proposed Development the potential effects proposed to be scoped into and out of the EIA for this topic are presented in **Tables 14.12** and **14.13**.

**Table 14.12 Elements of the Socio-Economics and Land Use Assessment Proposed to be Scoped In to the EIA**

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
<b>Construction Phase</b>		
Employment and supply chain effects.	Scoped in.	The construction of the Proposed Development will create jobs directly and in the supply chain which could have the potential for a significant effect.
GVA effects.	Scoped in.	The construction of the Proposed Development will generate GVA in the local, regional and national economy which could have the potential for a significant effect.
Wider socio-economic effects.	Scoped in.	The construction of the Proposed Development could have wider and knock-on socio-economic effects including structural economic change or disruption to established local industries, which could have the potential for a significant effect.
Socio-cultural effects.	Scoped in.	Changes to local demographics and the local environment associated with construction activity and the presence of an incoming construction workforce could result in increased demand for social infrastructure and changes in community identity and way of life, which could have the potential for significant effects.
Land use effects.	Scoped in.	The construction of the Proposed Development will result in temporary changes in land use within the Site Boundary which could result in effects for the agricultural sector and food security. The assessment will consider both short-term effects associated with construction activity, and longer-term effects that would arise during construction and continue throughout the operational phase.
Direct effects for users of PRow.	Scoped in.	Direct impacts on PRow, including temporary or permanent closure or diversion, could have the potential for

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
		significant effects for users of these resources.
Indirect effects for users of PRow.	Scoped in.	There could also be effects on amenity for PRow users, arising from a combination of noise and visual impacts.
<b>Operational Phase</b>		
Employment and supply chain effects.	Scoped in.	The operation of the Proposed Development will create jobs directly and in the supply chain which could have the potential for a significant effect.
GVA effects.	Scoped in.	The operation of the Proposed Development will generate GVA in the local, regional and national economy which could have the potential for a significant effect.
Indirect effects for users of PRow.	Scoped in.	There could be effects associated with impacts on amenity for PRow users, that would be distinct from the effects that could arise during construction. An Outline PRow Management Plan will be developed to manage the impacts to PRow.

**Table 14.13 Elements of the Socio-Economics and Land Use Assessment Proposed to be Scoped Out of the EIA**

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
<b>Operational Phase</b>		
Wider socio-economic effects.	Scoped Out.	These impacts are not expected to arise during the operational phase and are therefore scoped out for operation. Any long-term effects arising during construction that would be expected to continue into operation, such as effects arising from the temporary loss of

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
		agricultural land, will be assessed as construction effects and are therefore scoped out for operation.
Socio-cultural effects.	Scoped Out.	Operational employment is expected to be relatively small and unlikely to result in significant changes in local demographics or additional demand for services. Socio-cultural effects are therefore not expected to arise during the operational phase and are therefore scoped out for operation.
Land use effects.	Scoped Out.	These impacts are not expected to arise during the operational phase and are therefore scoped out for operation. Any long-term effects arising during construction that would be expected to continue into operation, such as temporary or permanent loss of BMV agricultural land, will be assessed as construction effects.
Direct effects for users of PRow.	Scoped Out.	These impacts are not expected to arise during the operational phase and are therefore scoped out for operation. Any long-term effects arising during construction that would be expected to continue into operation, such as effects associated with closure or diversion of PRow, will be assessed as construction effects. As per commitment <b>SE1</b> an Outline PRow Management Plan will be developed to manage the impacts to PRow during operation and decommissioning.

## 14.7 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTIES

14.7.1 The assumptions and limitations underpinning the socio-economic impact assessment are as follows:

- Information on current land use from landowners on the Site may be required to determine existing employment generated within the existing Site. In the absence of this information, good practice guidance and professional judgment will be applied.

- As the Proposed Development does not have a fixed layout including the refinement of the Cable Corridor Options, it is currently not possible to determine the number and length of PRow that will be affected. However, this information will be determined to inform the ES and DCO application.

## 15. TRAFFIC AND TRANSPORT

### 15.1 INTRODUCTION

- 15.1.1 This chapter details the baseline conditions, potential effects, mitigation and assessment methodology for Traffic and Transport. The potential effects of the Proposed Development have been identified through a technical review of the current design, construction, operational (including maintenance) and decommissioning principles of the Proposed Development and how these effects may interact with transport and access.
- 15.1.2 It will also outline the proposed approach to the technical scope of this chapter in the EIA and determine the specific elements that are scoped in and out of each assessment, aligning with the requirements of the EIA Regulations.

### 15.2 TOPIC-SPECIFIC LEGISLATION, POLICY AND GUIDANCE

#### Legislation

- 15.2.2 There is no legislation relevant to the assessment of Traffic and Transport in relation to the Proposed Development.

#### Policy

##### ***National Planning Policy***

- 15.2.3 The National Policy Statements (NPSs) outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:
- Overarching NPS for Energy (EN-1) (2023)<sup>180</sup>;
  - NPS for Renewable Energy Infrastructure (EN-3) (2023); and,
  - NPS for Electricity Networks Infrastructure (EN-5) (2023)<sup>181</sup>.
- 15.2.4 The following paragraphs in NPS EN-1 are of specific relevance to the Traffic and Transport assessment of the Proposed Development:
- 5.14.5 states *"if a project is likely to have significant transport implications, the applicant's ES should include a transport appraisal"*.
  - 5.14.11 states that *"Where mitigation is needed, possible demand management measures must be considered. This could include identifying opportunities to:*
    - *Reduce the need to travel by consolidating trips;*

- *Locate development in areas already accessible by active travel and public transport;*
- *Provide opportunities for shared mobility;*
- *Re-mode by shifting travel to a sustainable mode that is more beneficial to the network;*
- *Retime travel outside of the known peak times; and*
- *Reroute to use parts of the network that are less busy"*
- 5.14.15 states *"applicants should consult National Highways and Highway Authorities on assessment and mitigation"; and*
- 5.14.17 states *"A travel plan should be prepared, including demand management and monitoring measures to mitigate transport impacts".*

15.2.5 The following paragraphs in NPS EN-3 are of specific relevance to the Traffic and Transport assessment of the Proposed Development:

- 2.10.120 states that *"Modern solar farms are large sites that are mainly comprised of small structures that can be transported separately and constructed on site, with developers designating a compound on-site for the delivery and assemblage of the necessary components";*
- 2.10.123 states that *"Applicants should assess the various potential routes to the site for delivery of materials and components where the source of the materials is known at the time of application, and select the route that is most appropriate";*
- 2.10.124 states that *"Where the exact location of the source of construction materials, such as crushed stone or concrete is not known at the time of application, applicants should assess the worst-case impact of additional vehicles on the likely potential routes";*
- 2.10.125 states that *"Applicants should ensure all sections of roads and bridges on the proposed delivery route can accommodate the weight and volume of the loads and widths of the vehicles. Although unlikely, where modifications to road and/or bridges are required, these should be identified, and potential effects addressed in the ES"; and*
- 2.10.126 states that *"Where a cumulative impact is likely because multiple energy infrastructure developments are proposed to use a common port and/or access route and pass through the same towns*

*and villages, applicants should include a cumulative transport assessment as part of the ES. This should consider the impacts of abnormal traffic movements relating to the project in questions in combination with those from any other relevant development. Consultation with relevant local highway authority is likely to be necessary.”*

- 15.2.6 In NPS EN-5, paragraph 2.9.19 is of relevance to the Traffic and Transport assessment for the Proposed Development, and states that applicants should *“...make the design of the access, perimeter fencing, earth-shaping, planting and ancillary development an integral part of the site layout and design, so as to fit in with the surroundings.”*

### **National Planning Policy Framework 2024 (NPPF)<sup>182</sup>**

- 15.2.7 The National Planning Policy Framework (NPPF) sets out the Government’s planning policies for England, and how they are expected to be applied. The following paragraphs of the NPPF are of relevance to the Proposed Development in the context of the Traffic and Transport assessment:

- Paragraph 109 states that *“Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:*
  - a) making transport consideration making transport considerations an important part of early engagement with local communities;*
  - b) ensuring patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places;*
  - c) understanding and addressing the potential impacts of development on transport networks;*
  - d) realising opportunities from existing or proposed transport infrastructure, and changing transport technology and usage – for example in relation to the scale, location or density of development that can be accommodated;*
  - e) identifying and pursuing opportunities to promote walking, cycling and public transport use; and*

*f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains.”*

- Paragraph 116 states that *“Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, of the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios.”*
- Paragraph 118 states *“All Development that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a vision-led transport statement or transport assessment so that the likely impacts of the proposal can be assessed and monitored.”*

## Local Policy

### **Uttlesford District Council Local Plan (2005)<sup>183</sup>**

15.2.8 The Uttlesford Local Plan is a strategic document outlining the development framework for the Uttlesford district to guide sustainable growth up to 2033.

- Policy GEN2 – Design outlines the criteria to ensure that new developments are designed to harmonise with their surroundings and meet the needs of all users.
- Policy ENV15 – Renewable Energy states *“Small-scale renewable energy development schemes to meet local needs will be permitted if they do not adversely affect the character of sensitive landscapes, nature conservation interests, or residential and recreational amenity”.*

### **Braintree District Council (BDC) Local Plan 2013 - 2033<sup>184</sup>**

15.2.9 The Braintree District Local Plan 2033 is a comprehensive framework guiding the district's development up to the year 2033. It outlines strategies for housing, employment, infrastructure, and environmental conservation to ensure sustainable growth.

- Policy LPP 73 Renewable Energy Schemes states *“Renewable energy schemes will also need to demonstrate that they will not result in unacceptable impacts on residential amenity including*

*visual impact, noise, shadow flicker, reflection, odour, fumes and traffic generation” and “A condition will be attached to planning permissions for energy development schemes to require the site to be decommissioned and restored when energy generation use ceases or becomes non-functioning for a period of 6 months or more. Such a scheme shall include, if appropriate, measures to restore and protect soil quality”.*

- Policy SP6 B Transportation and Travel states *“The local planning authorities will work with government departments, Highways England, Essex County Council, Network Rail, rail and bus operators, developers and other partners to deliver the following:*
  - *Changes in travel behaviour by applying the modal hierarchy and increasing opportunities for sustainable modes of transport that can compete effectively with private vehicles;*
  - *New and improved road infrastructure and strategic highway connections to reduce congestion and provide more reliable journey times along the A12, A120 and A133; and*
  - *Innovative strategies for the management of private car use and parking including the promotion of car clubs and car sharing, and provision of electric car charging points.”*

### **Essex County Council (ECC) Essex Transport Strategy: The Local Transport Plan for Essex<sup>185</sup>**

15.2.10 The Essex Transport Strategy sets out the long-term approach for transport in Essex and aspirations for improving travel in the county.

- Policy 6 ‘Freight Movement’ states the Council will manage the efficient movement of freight within the county by *“working with operators to ensure that heavy goods vehicles use identified routes and that other freight traffic uses the most appropriate routes; working with local businesses to promote and support the sustainable distribution of goods; working in partnership with the Highways Agency and neighbouring authorities to provide live travel information to freight operators; encouraging a shift of freight from road transport to rail transport.”*
- Policy 7 ‘Carbon Reduction’ states the Council will support and encourage the use of lower carbon travel by *“promoting the use of more sustainable forms of travel (Policy 8); supporting use of emerging low-carbon technologies to reduce carbon emissions from*

*transport sources; ensuring the Essex Road network operates efficiently to minimise CO2 emissions from vehicles.”*

- Policy 8 ‘Promoting Sustainable Travel Choices’ states the Council will encourage the use of more sustainable forms of travel by *“consistently supporting and promoting sustainable travel and requiring effective travel planning for proposed developments in line with the Council’s current development management policies.”*

## Guidance

- 15.2.11 This chapter is prepared with reference to the Institute of Environmental Management and Assessment (IEMA) ‘Guidelines for the Environmental Assessment of Transport and Access’ published by IEMA (the IEMA Guidelines<sup>186</sup>).
- 15.2.12 IEMA released updated guidance in July 2023 titled “*Environmental Assessment of Traffic and Movement*”, replacing the previous 1993 guidelines. This new document provides contemporary best practices for evaluating the environmental impacts of traffic and movement in both statutory EIA and non-statutory environmental assessments.
- 15.2.13 The Planning Inspectorate’s guidance on ‘Scoping Solar Development<sup>187</sup>’ is also considered in the preparation of this chapter.

## 15.3 PRELIMINARY BASELINE CONDITIONS

### Data Sources

- 15.3.2 The ES will present detailed information on the Transport and Traffic impacts of the Proposed Development following the review and analysis of the following data sources:
- Geographic Information System (GIS) mapping;
  - Ordnance Survey (OS) mapping;
  - Topographical Surveys;
  - Automatic Traffic Count (ATC) Surveys;
  - National Highways WebTRIS (Web-based Traffic Information System);
  - ECC Highway boundary information;
  - ECC Road traffic collision data;
  - ECC Highways information map; and
  - In person site audits.

## Proposed Study Area

15.3.3 The traffic and transport Study Area will be defined by the construction vehicle routes(s) to the Proposed Development and will also include the preferred 132 kV Cable Corridor(s) (to be determined).

15.3.4 **Table 15.1** summarises the attributes of the road network within the Study Area.

**Table 15.1 Study Area Highway Links**

Link	Description	Speed Restriction	Notes
<b>Access Roads</b>			
A120	Dual carriageway	70 mph	Key arterial road suitable for large vehicles
A131	Dual carriageway	70 mph	Key arterial road suitable for large vehicles
B1417	Single carriageway	60 mph (30 mph through Watch House Green)	Good forward visibility and central white line delineation
Rayne Road	Single carriageway	30 mph through Watch House Green 60 mph outside of Watch House Green	Good forward visibility and central white line delineation
Crix Green	Single carriageway	40 mph	Some variable road width and central white line delineation
Moulsham Hall Lane / Main Road	Single carriageway	60 mph	Good forward visibility and central white line delineation
School Road	Single carriageway	40 mph	Good forward visibility and central white line delineation

Link	Description	Speed Restriction	Notes
Mill Lane	Single Carriageway / single track	60 mph	Single track variable road width which narrows to the north, grassed (soft) verges, potential challenges to two-way movement

15.3.5 The Study Area, including the identified receptors within the Study Area, is shown in **Figure 15.1**. The Study Area is under consideration and will be subject to agreement with ECC / National Highways (NH).

### Traffic Flows

15.3.6 Automatic Traffic Count (ATC) surveys will be undertaken for all roads which form the construction routes to the Proposed Development.

15.3.7 In addition, Department for Transport (DfT) data and the NH WebTRIS system will be reviewed for the A120 and A131 traffic baseline flows.

15.3.8 The ATC survey locations are summarised as follows:

- ATC Location 1: B1256;
- ATC Location 2: B1417, north of Watch House Green;
- ATC Location 3: Rayne Road, Watch House Green;
- ATC Location 4: Rayne Road, east of Watch House Green;
- ATC Location 5: Rayne Road, west of Molehill Green;
- ATC Location 6: Main Road, Willows Green;
- ATC Location 7: Milch Hill;
- ATC Location 8: School Road, south of the A120 (and Rayne);
- NH Count Site: A120 (Site ID: 7107/2) – westbound traffic;
- NH Count Site: A120 (Site ID: 7106/1) – eastbound traffic;
- DfT Count Site: A131 (Site ID: 80762) (2017); and,
- DfT Count Site: A131 (Site ID 90323) (2023).

15.3.9 **Figure 15.2** shows the location of ATCs, NH and DfT count sites.

## Highway Safety / Collision Data

- 15.3.10 To support the assessment, Personal Injury Accident (PIA) data will be reviewed in the Study Area, on construction routes and the selected Cable Option(s) to identify any 'hot spots' or clusters of concern.
- 15.3.11 A request has been made to ECC for the provision of classified PIA data for the most recent 5-year period.

## Cable Corridor Options

- 15.3.12 An underground cable connection is required to connect the Proposed Development with the UKPN Braintree 132 kV Substation.
- 15.3.13 Presently, four Cable Corridor Options are being considered and technically reviewed. The Cable Corridors will be refined down to a maximum of two options for the ES. The chosen Cable Option(s) will form part of the Study Area and will be included within the assessment in the ES.
- 15.3.14 Additional ATC surveys will be undertaken on the chosen Cable Option(s). It is understood that the cable will be laid at a rate of 2 km of cable per month (equating to approximately 500 m per week). The size of these trenches will vary depending on the number of circuits they contain, but they could typically be up to 1 m wide and up to 1.5 m deep (depending on purpose / type of existing land requiring trenching).

## Consultation

- 15.3.15 Consultation with ECC (the Highway Authority) was undertaken on 14 February 2025 to better understand the road network within the Study Area, and any concerns ECC may have relating to transport and access.
- 15.3.16 ECC was in agreement that the A120 and A131 were the most practical distributor roads from which then to access local roads toward the Proposed Development.
- 15.3.17 It was noted by ECC that Chelmsford City Racecourse hosts a number of events and meetings throughout the year and any construction traffic movements or Abnormal Indivisible Load (AIL) movements shall avoid event days and peak periods. Mitigation measures such as

seeking to avoid network peak hours through vehicle scheduling should be considered to minimise impacts on the network.

- 15.3.18 ECC also noted that subject to the number of construction workers at the site, some consideration should be given to mini-buses and car sharing or use of land at Chelmsford City Racecourse as a 'shuttle' or park and ride site to / from the Proposed Development.
- 15.3.19 ECC advised that, subject to planning determination of 'Strategic Growth Site 7A, Moulsham Hall Lane, Great Leighs, Chelmsford Essex' (Planning Reference: 23/01769/FUL and 23/01583/FUL for up to 750 new residential homes including Spine Road and access points from Moulsham Hall Lane), the construction phase may need to consider this application and how any changes to Moulsham Hall Road may impact delivery of AILs or construction materials.
- 15.3.20 ECC advised against the use of The Flitch Way as a potential Cable Corridor between the Site and National Grid Substation at Braintree.
- 15.3.21 ECC were receptive of construction routes avoiding, wherever possible, residential and sensitive areas (such as Watch House Green and Bannister Green).
- 15.3.22 Future engagement with ECC will be held to discuss estimated peak and daily HGV movements, length of construction programme, confirmation of access points and substation / compounds.

### **Construction Vehicle Trip Generation**

- 15.3.23 The construction vehicle trip generation is under consideration. Full details will be provided in the ES chapter and outline Construction Traffic Management Plan (CTMP).
- 15.3.24 It is expected that a range of vehicles will access the Site to enable construction and decommission phases, which will comprise, but not be limited to:
- Light Goods Vehicles (LGVs) – vans and small flatbeds – movement for plant and maintenance, PPE, fixtures and fittings, small components, couriers, post, supplies;
  - Heavy Goods Vehicles (HGVs) – 2-6 axle rigid or articulated lorries – movement for material and component deliveries, PB tables, mounts and panels, piling rigs, aggregate, spoil removal, cable and fencing;

- Cars and Minibuses – for staff transport; and
- AIL – girder frame trailer and tractor combination for substation transformers.

15.3.25 It is envisaged that the majority of non-local workforce will stay in local accommodation and be transported by minibus to minimise local impacts on the strategic and local highway network.

### Construction Vehicle Routes

15.3.26 The A120 and A131 will comprise the arterial connectors for construction traffic accessing the Proposed Development. The remaining links within the Study Area comprise more rural roads with intermittent road markings and varying carriageway widths. The final access strategy is under consideration and will be subject to agreement with ECC and NH.

15.3.27 All potential construction traffic routes to the Site from the either A120 and / or A131 have been subject to a detailed review, as shown in Figure 15.3. This evaluation used multiple data sources alongside an in-person site audit to ensure a robust review of route suitability.

15.3.28 Following this process, certain routes are scoped out due to a range of constraints, including those directly informed by the guidance provided in the IEMA Guidelines. The remaining viable routes, as outlined in **Figure 15.3**, will be subject to a comprehensive assessment within the EIA.

### Indicative Access Points

15.3.29 Details of the proposed access points will be described within the ES, however, at the time of writing, up to four points of access have been identified from the local road network. These proposed access points are shown on **Figure 15.4**.

15.3.30 Generally, the points of access take the form of existing agricultural accesses which will be upgraded to a national policy compliant standard, in line with the Design Manual for Roads and Bridges (DMRB) and in agreement with ECC.

15.3.31 Access to the primary construction compound/laydown area will be taken from Rayne Road to HG3, west of Bannister Green. This proposed access will also provide access to the on-site substation which will be located within the southern half of HG3. It is also

expected that the HV transformer (150 tonnes max weight) will be transferred to this access point, however, the routing and access points for AILs will be established during the design process, in consultation with the appropriate statutory consultees.

- 15.3.32 Temporary smaller laydown areas will be constructed within HG1 and HG2 and accessed from School Road and the B1417. There is likely to be a requirement for materials to be transported from the primary construction compound to the smaller temporary laydown areas.
- 15.3.33 Swept Path Analysis (SPA) will be included within the outline CTMP to demonstrate they operate safely.
- 15.3.34 As previously outlined, all construction vehicles will access the Site via the A120 and/or A131. Construction vehicles will take the following routes to the respective access points as presented in **Table 15.2**. The field referencing and number is illustrated in **Figure 3.2**.

**Table 15.2 Construction Access Routing**

Site / Access	Construction Access Routing
National Grid Substation (Braintree)	A120 eastbound – Galleys Corner Roundabout – south on the B1018 – Substation access
HG3 (Fields R1 and R2) Access R1 and Access R2	Option A – A120 eastbound – exit A120 at Panners Roundabout – A131 (under A120) – Great Notley Roundabout merge A120 westbound – exit A120 at B1417 – south on B1417 - access R1 / R1 Option B – A120 westbound as above
HG3 (Fields R3-R7) Access R7	A131 – north on Moulsham Hall Lane – Main Road – left turn onto Crix Green – east on Crix Green – westbound Rayne Road – access R7
HG2 (Fields A1-3, A5-6, A10) Access H5	As above for R7 (but access taken to H5 from Rayne Road)
HG2 (Field A4, A7, A8, A9, A11) Access D4/5 (to be determined)	A131 – north on Moulsham Hall Lane – Main Road – Milch Hill – Milch Lane – School Road – left turn into Mill Lane – final access to be determined
HG1 (Fields D1-9) Access D4/5 (to be determined)	As above

## 15.4 TECHNICAL SCOPE AND APPROACH TO EIA

15.4.1 The approach for the assessment will be based on the IEMA Guidelines 2023. The impact of traffic and movement is dependent on a range of factors including the local environment, volume of development traffic, network operations, and composition of HGV traffic.

### Types of Impact

15.4.2 The Proposed Development's impact on the environmental impact criteria outlined in the IEMA Guidelines 2023 has been considered.

15.4.3 These criteria include:

- Severance;
- Driver delay;
- Pedestrian delay (incorporating delay to all non-motorised users);
- Non-motorised user amenity;
- Fear and intimidation (and degree of hazard);
- Road safety; and
- Hazardous loads / large loads.

15.4.4 In instances where there is expected to be a significant effect on any of the criteria outlined by the IEMA Guidelines 2023, the necessary mitigation will be identified and presented in the ES Chapter and outline CTMP, which will be prepared.

### Assessment of Effect

#### Severance

15.4.5 The IEMA Guidelines define severance as "*the perceived division that can occur within a community when it becomes separated by major transport infrastructure*" that "...separates people from places and other people".

15.4.6 There are no predictive formulae which give simple relationships between traffic factors and levels of severance. The IEMA Guidelines states:

*"The Department for Transport has historically set out a range of indicators for determining the significance of severance. Changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and*

*'substantial' changes in severance respectively. Although these thresholds no longer appear in Department for Transport guidance, they have not been superseded by subsequent changes to guidance and are established through planning case law. However, caution needs to be observed when applying*

*these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic."*

- 15.4.7 ATCs will be undertaken at the locations identified in **Figure 15.2** to obtain an accurate assessment of current traffic flows. This baseline will be supported by the construction trip generation and distribution of traffic. The results of this analysis will generate the percentage change in traffic flow, allowing severance to be assessed.
- 15.4.8 The assessment of severance will be considered with the respect to any impacts on PRowS in the Study Area.

### **Driver Delay**

- 15.4.9 The IEMA Guidelines states that *"Delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system."* As such, the impact of a scheme on driver delay is typically considered in relation to background traffic.
- 15.4.10 Consultation with ECC and assessment of ATC and traffic flow data will confirm if the Proposed Development will likely have an effect on driver delay by means of adding additional vehicles on links during construction, operation and decommissioning phases. An assessment will also be undertaken on the driver delay experienced on the selected Cable Option.

### **Pedestrian Delay**

- 15.4.11 The IEMA Guidelines states that *"The assessment of pedestrian delay serves as a proxy for the delay that other modes of non-motorised users may experience when crossing roads".* The IEMA Guidelines state that *"it is not considered wise to set down definitive thresholds. Instead, it is recommended that the competent traffic and movement expert use their judgement to determine whether pedestrian delay constitutes a significant effect."*

- 15.4.12 Consultation with ECC and an assessment of ATC and traffic flow data will provide the evidence to confirm effects on the network, including any PRowS in the Study Area.

### ***Non-motorised User Amenity (including Fear & Intimidation)***

- 15.4.13 The IEMA Guidelines states that "*Pedestrian amenity is broadly defined as the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic*". There are a range of local factors affect pedestrian delay, including the level of pedestrian activity, visibility and general physical conditions of the site. The IEMA Guidelines suggest that a threshold for judging this would be "*where the traffic flow (or its HGV component) is halved or doubled.*"
- 15.4.14 The IEMA Guidelines states that "*...thresholds to define the degree of hazard to pedestrians by average traffic flow, 18-hour heavy vehicle flow and average speed over an 18-hour day in miles/hour*". Table 3.1 of the IEMA Guidelines (which provides an example scoring system) will be referenced to assess the degree of hazard.

### ***Road Safety***

- 15.4.15 The IEMA Guidelines do not include a defined methodology for assessing road safety, advising that professional judgment should be used to assess the implications of local circumstance, or factors which may increase or decrease the risk of accidents.
- 15.4.16 As previously outlined, records of the PIAs have been requested from ECC for all the potential construction traffic routes to the Site for the most recent 5-year period.
- 15.4.17 There are no notable clusters or accident hotspots within the Study Area. A detailed report will be collated and considered where necessary with the ES.

### ***Hazardous / Large Loads***

- 15.4.18 The IEMA Guidelines state that some development includes hazardous loads, and that this should be recognised by the assessment. An AIL, by its simplest definition, is typically classified as a vehicle which exceeds 44 tonnes Gross Vehicle Weight, or its width exceeds 2.9 m, or length exceeds 18.65 m.

- 15.4.19 There will be a limited number of AILs to transport items to the Proposed Development, such as substation transformers. The number of transformers and AILs has not been confirmed and will be consulted on with ECC and NH.
- 15.4.20 An AIL report will be prepared and included with the ES.
- 15.4.21 There are no hazardous loads anticipated as part of the construction, operation or decommissioning phases.

### ***Sensitivity of Receptors***

- 15.4.22 Under the IEMA Guidelines, the level of assessment is determined based on the scale of the Proposed Development, its location, and the potential for significant environmental or traffic effects.
- 15.4.23 The IEMA Guidelines provide two rules that are used as threshold impacts to define the scale and extent of the assessment, as follows:
- *"Rule 1: Include highway links where traffic flows are predicted to increase by more than 30% (or where the number of HGVs is predicted to increase by more than 30%); and*
  - *Rule 2: Include sensitive areas where traffic flows are predicted to increase by 10% or more".*
- 15.4.24 The impact assessment will be based on guidance set out in the IEMA Guidelines. This follows a two-part approach to determine the overall significance of effect.
- 15.4.25 The first part involves the classification of the receptor sensitivity. This follows in **Table 15.3**.

**Table 15.3 Classification of Receptor Sensitivity**

Receptor / Sensitivity	Receptor Type
High	Receptors of greatest sensitivity to traffic flow such as schools, colleges, playgrounds, accident hotspots, retirement homes, urban/residential roads without footways with high footfall, congested area.
Medium	Receptors with some sensitive to traffic flow including conservation areas, listed buildings, tourist attractions, and residential areas.

Receptor / Sensitivity	Receptor Type
Low	Receptors with low sensitivity to traffic flow and distanced from affected roads.
Negligible	Receptors with no material sensitivity to traffic flows.

15.4.26 Sensitivity judged as High or Medium results in Rule 2 (sensitive areas where traffic flows are predicted to increase by 10% or more) being considered for that location. Sensitivity judged as Low or Negligible results in Rule 1 being considered for that location (where traffic flows are predicted to increase by more than 30%).

15.4.27 Where forecast increases in vehicles flows are lower than the 10% and 30% thresholds, the significance of effects can be considered to be low or not significant enough to require further detailed assessment.

15.4.28 **Table 15.4** defines the criteria used to determine the magnitude of impact.

**Table 15.4 Criteria for the Magnitude of Change**

Potential Impact	Assessment Criteria for Determining the Magnitude of Change
Severance	<p>The IEMA Guidelines identifies a range of indicators for determining the magnitude or severance effects. It suggests changes in traffic flows and associated magnitude of impacts as:</p> <ul style="list-style-type: none"> <li>• &lt;30% - negligible magnitude of change;</li> <li>• 30-60% - small magnitude of change;</li> <li>• 60-90% - medium magnitude of change; and</li> <li>• &gt;90% - large magnitude of change.</li> </ul>
Driver Delay	<p>The IEMA Guidelines does not provide set thresholds for determine when a change in driver delay is likely to be significant and refers to professional judgement.</p> <p>It is proposed to use professional judgment and the overall changes in traffic flow with reference to the typical IEMA Guidelines thresholds (as outlined above) to determine whether there is likely to be any significant changes to driver delay.</p>

<b>Potential Impact</b>	<b>Assessment Criteria for Determining the Magnitude of Change</b>
Pedestrian Delay	The IEMA Guidelines recommends the use of professional judgment to determine whether pedestrian delay is significant.
Non-motorised User Amenity	The IEMA Guidelines suggests that assessors use their judgement to determine whether pedestrian amenity is a significant effect and as such, the magnitude of change for pedestrian amenity has been defined qualitatively based on professional judgement.
Fear and Intimidation	<p>The IEMA Guidelines refers to an assessment for the 'degree of hazard' in Table 3.1 of the guidance. Each road link within the agreed Study Area will be assessed to determine the values of these parameters using traffic data.</p> <p>A comparison of the 'degree of hazard' will be undertaken for the peak construction year with and without construction traffic against the baseline traffic flows to determine any changes.</p> <p>The step changes as presented within Table 3.3 of the IEMA Guidelines will be followed to determine the magnitude of impact.</p> <p>The magnitude of impact will then be determined as follows:</p> <ul style="list-style-type: none"> <li>• Negligible — no step change from baseline;</li> <li>• Low — one step change from baseline (&lt;400 vehicle trip increase);</li> <li>• Medium — one step change from baseline (&gt;400 daily vehicle trip increase); and</li> <li>• High — two step changes from baseline.</li> </ul>
Road Safety	<p>The IEMA Guidelines suggests that the magnitude of Road Safety impacts will be related to identifying collision clusters and collision rates through a detailed review of baseline characteristics to determine road safety and sensitivity. However, it does not provide any defined thresholds. Instead, the IEMA Guidelines advises that professional judgement will be needed to assess the implications of local circumstances, or factors which may elevate or lessen risks of accidents occurring. In addition, the IEMA Guidelines refers to the use of a Stage 1 Road Safety Audit to determine the suitability of any traffic and transport related works that are proposed.</p>

Potential Impact	Assessment Criteria for Determining the Magnitude of Change
Hazardous and Large Loads	The IEMA Guidelines does not set specific thresholds for the consideration of Hazardous and Large loads, only that professional judgement should be utilised based on the frequency and nature of any Hazardous and/or Large loads.

- 15.4.29 The magnitude of change (**Table 15.1**) and receptor sensitivity (**Table 15.4**) will be compared to determine the overall significance of effect (presented in **Chapter 6, Table 6.1**).
- 15.4.30 There are five categories which outline the significance of the effect, these are further defined in **Chapter 6**, Section 6.5.
- Neutral – no change from baseline conditions;
  - Negligible – very little change from baseline conditions;
  - Minor – a minor change away from baseline conditions;
  - Moderate – a material shift away from baseline conditions; and
  - Major – a substantial change away from baseline conditions.
- 15.4.31 Following the classification of an effect, a clear statement is provided as to whether the effect is 'Significant' or 'Not Significant'.
- 15.4.32 It is considered that only moderate and major effects are significant for the purpose of assessment. Effects can be temporary or permanent and short, medium or long term in duration. The definitions of these are as follows:
- A short-term effect — an effect that will be experienced for 0-5 years;
  - A medium-term effect — an effect that will be experienced for 5-15 years; and,
  - A long-term effect — an effect that will be experienced for 15 years or longer.
- 15.4.33 It is noted throughout the IEMA Guidelines that the assessment of environmental effects arising from road traffic is not an exact science and a degree of professional judgement is required in all instances. This is particularly the case for the assessments of effects on non-motorised users where local characteristics need to be fully considered.

15.4.34 The construction phase (which is anticipated to be 24 months) and decommissioning phase (which is anticipated to follow a similar programme to construction but in reverse) are both well within the threshold of being short-term effects. Whilst the operational effects are long-term, the number of trips generated during the operational phase are anticipated to be low.

## 15.5 POTENTIAL SIGNIFICANT EFFECTS AND MITIGATION

### Construction

- 15.5.2 The ES Chapter will present the effects of the construction phase of the Proposed Development which is anticipated to last approximately 24 months.
- 15.5.3 The following potential effects to traffic and transport will be included for assessment: These include:
- Severance;
  - Driver delay;
  - Pedestrian delay (incorporating delay to all non-motorised users);
  - Non-motorised user amenity;
  - Fear and intimidation (and degree of hazard);
  - Road safety; and
  - Hazardous loads / large loads.
- 15.5.4 Additional reports will also be prepared to accompany the ES Chapter in the form of technical Appendices. These include:
- An outline Construction Traffic Management Plan (CTMP);
  - A Public Right of Way (PRoW) Management Plan;
  - A Construction Worker Travel Plan (TP); and
  - An Abnormal Indivisible Load (AIL) Access Study.

### Operation

- 15.5.5 During the operational phase, there is anticipated to be between 1-2 maintenance visits each month. These will typically be made by light van, SUV or 4x4 type vehicles. Whilst the construction compounds will have been removed during the construction phase, space will be provided on Site for such vehicles to manoeuvre and egress in forward gear to ensure that no reversing occurs onto the highway.

- 15.5.6 It is anticipated that the solar PV modules will require replacement of any components that fail. The ES will include further details of the maintenance and replacement activities, although any required trips are expected to be general and ad-hoc and any impacts on the road network can be minimised.
- 15.5.7 In consideration of this, the traffic and transport effects will be negligible or neutral.

### **Decommissioning**

- 15.5.8 The Proposed Development has an anticipated design life of up to 40 years. At the end of life, the Proposed Development will be decommissioned and removal of above ground infrastructure such as the substation and 132 kV cable will be agreed with the Local Planning Authority.
- 15.5.9 The number of vehicles associated with the decommissioning phase are not anticipated to exceed that identified for the construction phase. It is therefore considered that all traffic and transport effects for this phase will be the same as the construction phase. Mitigation will broadly follow the outlined mitigation measures for the construction phase.

### **Cumulative effects**

- 15.5.10 Identification of other developments that may give rise to cumulative effects during the temporary construction and decommissioning phases will be agreed with ECC and NH and any effects arising will be considered and described.

### **Mitigation**

- 15.5.11 Embedded mitigation measures will be incorporated into the design layout and principles of the Proposed Development as part of the good design process.
- 15.5.12 The mitigation measures relating to traffic and transport which will be embedded into the design and construction may include, but will not be limited to:
- Preparing of a PRow Management Plan and details of any diversions;
  - Preparation of a Construction Worker Travel Plan (CWTP);
  - Design of suitable access arrangements; and

- Traffic management measures.

## 15.6 PROPOSED SCOPE OF THE EIA

15.6.1 On the basis of the likely sensitive receptors and aspects of the Proposed Development the potential effects proposed to be scoped into and out of the EIA for this topic are presented in **Tables 15.6** and **15.7**.

**Table 15.6 Elements of the Traffic and Transport Assessment  
Proposed to be Scoped In to the EIA**

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
<b>Construction Phase</b>		
Severance.	Scoped In.	<p>The construction vehicle trip generation is under consideration. Full details will be provided in the ES chapter and outline Construction Traffic Management Plan (CTMP).</p> <p>It is expected that a range of vehicles will access the Site to enable construction will comprise, but not be limited to: LGVs, HGVs, cars, minibuses, and AIL.</p> <p>The assessment of severance will be considered with the respect to any impacts on PRoWs in the Study Area.</p>
Driver delay.	Scoped In.	<p>Consultation and traffic flow data will confirm if the Proposed Development is likely to have an effect on driver delay by means of adding additional vehicles on links during construction.</p>
Pedestrian delay.	Scoped In.	<p>Consultation and an assessment of ATC and traffic flow data will provide the evidence to confirm effects on the network, including any PRoWs in the Study Area.</p>
Non-motorised user amenity.	Scoped In.	<p>Construction vehicle trip generation numbers will be assessed to determine whether the thresholds noted in the IEMA guidelines for impact to non-motorised user amenity are reached.</p>

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
Fear and intimidation (and degree of hazard).	Scoped In.	Construction vehicle trip numbers will be assessed to determine whether the thresholds noted in the IEMA guidelines for to assess the degree of hazard to non-motorised user amenity are reached.
Road safety.	Scoped In.	PIAs have been requested for all potential construction traffic routes and will be used to assess the impacts of construction vehicle trip numbers may increase or decrease the risk of accidents.
Hazardous loads / large loads.	Scoped In.	There will be a limited number of AILs to transport items to the Proposed Development, such as substation transformers. The number of transformers and AILs has not been confirmed and will be consulted on with ECC and NH. An AIL report will be prepared and included with the ES.
<b>Decommissioning Phase</b>		
Severance.	Scoped In.	The number of vehicles associated with the decommissioning phase are not anticipated to exceed that identified for the construction phase. It is therefore considered that all traffic and transport effects for this phase will be the same as the construction phase.
Driver delay.	Scoped In.	As outlined above.
Pedestrian delay.	Scoped In.	As outlined above.
Non-motorised user amenity.	Scoped In.	As outlined above.
Fear and intimidation (and degree of hazard).	Scoped In.	As outlined above.

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
Road safety.	Scoped In.	As outlined above.
Hazardous loads / large loads.	Scoped In.	As outlined above.

**Table 15.7 Elements of the Traffic and Transport Assessment  
Proposed to be Scoped Out of the EIA**

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
<b>Operational Phase</b>		
Severance.	Scoped Out.	The operation of the Proposed Development will only result in ad-hoc infrequent and light maintenance trips by either commercial van or car. This level of traffic will be negligible or neutral
Driver delay.	Scoped Out.	As outlined above.
Pedestrian delay.	Scoped Out.	As outlined above.
Non-motorised user amenity.	Scoped Out.	As outlined above.
Fear and intimidation (and degree of hazard).	Scoped Out.	As outlined above.
Road safety.	Scoped Out.	As outlined above.
Hazardous loads / large loads.	Scoped Out.	As outlined above.

## 15.7 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTIES

- 15.7.1 Statutory consultation will continue to take place with the highway authorities for the area, specifically ECC and NH.
- 15.7.2 Where the Proposed Development designs and details are either not yet known or incomplete at this stage, either assumptions have been made based on professional judgment, or, in the event that it is not possible to make any assumptions, no attempt at a full assessment will be made. The ES is an iterative process and will be both expanded and made more specific as survey data is collected, analysed and reported on, and designs are further developed. This process will be carried out in conjunction with relevant consultees and third parties as necessary to achieve the most robust outcome.

## 16. WATER RESOURCES AND FLOOD RISK

### 16.1 INTRODUCTION

- 16.1.1 This chapter details the baseline conditions, potential effects, mitigation and assessment methodology for water resources and flood risk. The potential effects of the Proposed Development have been identified through a technical review of the current design, construction, operational (including maintenance) and decommissioning principles of the Proposed Development and how these effects may interact with the water environment.
- 16.1.2 This section sets out the approach and scope of the water resources and flood risk impact assessment, which will consider potential effects of the Proposed Development on:
- Surface watercourses and waterbodies;
  - Groundwater;
  - Flood risk at the Site (from fluvial, tidal and Coastal, pluvial, groundwater, sewers, and artificial waterbodies);
  - Flood risk elsewhere (from fluvial, tidal and coastal, pluvial, groundwater, sewers, and artificial waterbodies); and
  - Water abstractions and supplies.

### 16.2 TOPIC-SPECIFIC LEGISLATION, POLICY AND GUIDANCE

- 16.2.1 The scope of the water resources and flood risk chapter has been developed in line with the following key legislation, policy and guidance.

#### **Legislation**

##### ***Water Framework Directive***

- 16.2.2 The Water Framework Directive<sup>188</sup> (2000/60/EC) (as implemented in England via the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017) establishes a framework to protect the UK's water environments by preventing their deterioration and improving their quality. This is achieved through setting ecological targets and environmental objectives to ensure the protection, improvement, and sustainable use of all water environments.

### ***The Floods Directive***

16.2.3 The EU Floods Directive<sup>189</sup> sets out the requirement for the Environment Agency and Lead Local Flood Authorities to produce hazard maps and flood risk management for plans areas at significant potential risk of flooding.

### ***The Water Act 2014***

16.2.4 The Water Act 2014<sup>190</sup> is in place to introduce innovation and reform to the water industry to increase the resilience of water supply and resources to natural hazards.

### ***The Environment Act 2021***

16.2.5 The Environment Act 2021<sup>191</sup> introduces modifications to the Environment Act 1990, specifically targeting Sections 170, 173, and 175. The Act introduces Environmental Improvement Plans and adopts a target-oriented approach for waterbodies, aligning with the objectives of the Water Framework Directive (WFD).

### ***The Environmental Targets (Water) (England) Regulations 2023***

16.2.6 The Environmental Targets (Water) (England) Regulations 2023<sup>192</sup> set out long term targets concerning four aspects within the water priority domain outlined in section 1 of the Environment Act 2021. These regulations outline the specific targets to be attained for each aspect and stipulate the deadline for achieving each target. The regulations include provisions to reduce:

- The levels of total nitrogen, total phosphorus and sediment entering freshwaters and coastal waters around England from agricultural land;
- The levels of total phosphorus discharged into freshwaters from relevant discharges from the sewerage systems of sewerage undertakers;
- The length of waters polluted by arsenic, cadmium, copper, lead, nickel and zinc from abandoned metal mines; and
- The amount of potable water supplied by water undertakers.

### ***Flood and Water Management Act 2010***

16.2.7 The objective of the Flood and Water Management Act 2010<sup>193</sup> is to enhance flood risk management and safeguard water supplies in

England and Wales. The Act revises existing laws to provide improved protection against floods, promote sustainable water management, enhance public services, and secure water resources, especially in times of drought.

***The Water Resources Act 1991 Section 85 (As Amended by the Water Act 2003)***

16.2.8 The Water Resources Act 1991<sup>194</sup> declares it a criminal effect to cause or knowingly allow the entry of polluting, noxious, poisonous, or solid waste materials into regulated waters. The Water Act (2003)<sup>195</sup> subsequently revised this Act, outlining regulatory measures for water abstraction, discharge into waterbodies, water impoundment, and the safeguarding of water resources.

***The Land Drainage Act 1991***

16.2.9 The Land Drainage Act 1991<sup>196</sup> assigns the responsibility of preserving watercourse flows to landowners and empowers Local Authorities to issue notices to ensure that necessary actions are taken for maintaining watercourse flow. Additionally, it serves as the legal framework granting Land Drainage Consenting powers to local authorities (now Lead Local Flood Authorities (LLFAs)) and Internal Drainage Boards for any activities that might impact flows in Ordinary Watercourses.

***Conservation Of Habitats and Species Regulations 2017***

16.2.10 The Conservation of Habitats and Species Regulations 2017<sup>197</sup> (as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019) incorporated the provisions of the Council Directive 92/43/EEC, which focuses on conserving natural habitats, wildlife, and flora (referred to as the Habitats Directive), into domestic law. The Habitats Regulations establish the structure for safeguarding Natura 2000 sites (now termed the national site network after amendments took effect on 31 December 2020) and specific flora and fauna identified as European Protected Species (EPS). The regulations outline the procedures related to the assessment of development.

16.2.11 It should be noted that this chapter assesses the potential effects of the Proposed Development on water resource supporting conservation and habitat sites, not the sites themselves, which will be

assessed in the Biodiversity and Nature Conservation chapter of the EIA.

### ***The Environmental Damage (Prevention and Remediation) Regulations 2017***

16.2.12 The Environmental Damage (Prevention and Remediation) Regulations 2017<sup>198</sup> imposes obligations on operators to prevent and remedy significant environmental damage, particularly to biodiversity, water, and land. It emphasizes proactive measures in environmental planning to prevent damage and address remediation.

### ***The Water Supply (Water Quality) Regulations 2016***

16.2.13 The Water Supply (Water Quality) Regulations 2016<sup>199</sup> replace the Water Supply (Water Quality) Regulations of 2000 and 2010. The main focus of these regulations is the quality of water provided in England by water undertakers and licensed water suppliers for domestic or food production purposes. They also address the disclosure of information concerning water quality.

### ***The Private Water Supplies (England) (Amendment) Regulations 2018***

16.2.14 The Private Water Supplies (England) (Amendment) Regulations 2018<sup>200</sup> impose an obligation on local authorities to oversee private water supplies in their jurisdiction and conduct monitoring to assess compliance with drinking water standards. A private water supply refers to any water source that serves one or more properties and is not provided by a water company.

### ***Environmental Permitting (England and Wales) Regulations 2016 (as amended 2018)***

16.2.15 The Environmental Permitting (England and Wales) Regulations 2016<sup>201</sup> stipulate the necessity of acquiring Flood Risk Activity Permits (FRAP) for activities carried out on or in close proximity to Main Rivers, flood defence structures, sea defences, or within a flood plain. Additionally, they mandate a specific substances assessment for any release of hazardous chemicals and elements into surface water.

## Policy

### **National Policy Statements (NPS)**

- 16.2.16 The NPSs outline the government's policy for delivering major energy infrastructure. The NPSs that are of relevance to the Proposed Development are:
- Overarching NPS for Energy (EN-1) (2023)<sup>202</sup>;
  - NPS for Renewable Energy Infrastructure (EN-3) (2023)<sup>203</sup>; and
  - NPS for Electricity Networks Infrastructure (EN-5) (2023)<sup>204</sup>.
- 16.2.17 Section 5.16 of EN-1 sets out the appropriate content of an EIA which includes existing water quality, watercourses and the physical characteristics of the water environment. Paragraph 4.10.11 of EN-1 sets out the requirement for applications to account for potential impacts of climate change and to incorporate suitable mitigation or adaption measures which account for potential impacts which are exacerbated due to climate change.
- 16.2.18 Section 5.8 of NPS EN-1 states that a Flood Risk Assessment (FRA) is mandatory for all developments situated in Flood Zones 2 or 3, as well as for sites exceeding 1 ha, having critical drainage problems, identified as being at increased flood risk in the future or subject to other source of flooding where its development would introduce a more vulnerable use. The purpose of the FRA is to evaluate the potential impact of flooding on proposed developments and to gauge the flood risk to third parties associated with these proposals.
- 16.2.19 NPS EN-1 states that the application of a risk-based flood risk sequential test to guide new developments towards areas with the lowest probability of flooding. Additionally, it aligns the flood risk vulnerability of a development proposal with the appropriate Flood Zones.
- 16.2.20 Section 2.3 of NPS EN-5 states that applications should identify the vulnerability and resilience of proposed developments to flooding.

### **National Planning Policy Framework (NPPF)**

- 16.2.21 The primary objectives of the NPPF<sup>205</sup> in relation to flood risk are to incorporate considerations of flood risk throughout the planning process, prevent unsuitable development in flood-prone zones and guide development away from high-risk areas. Sections 165 to 179

detail the key consideration of flood risk and coastal change within the NPPF. Where development in flood-prone areas is unavoidable, the NPPF aims to guarantee safety measures, preventing the increase of flood risk elsewhere and minimising the overall risk of flooding.

### **Local Planning Policy**

16.2.22 The Uttlesford Local Plan 2021-2041 (2024)<sup>206</sup> contains the following policies which are relevant to the water resources and flood risk:

- Core Policy 25: Renewable Energy Infrastructure;
- Core Policy 34: Water Supply and Protection of water Resources;
- Core Policy 35: Watercourse Protection and Enhancement;
- Core Policy 36: Flood Risk; and
- Core Policy 37: Sustainable Drainage Systems.

16.2.23 The Braintree District Local Plan (2022)<sup>207</sup> contains the following policies which are relevant to water resources and flood risk:

- Policy SP1: Presumption in favour of Sustainable Development; and
- Policy SP6: Infrastructure and Connectivity.

### **Guidance**

- Construction Industry Research and Information Association (CIRIA) Control of Water Pollution from Construction Sites (C532);
- CIRIA Development and flood risk: guidance to the construction industry, C624D<sup>208</sup>;
- British Standard Code of Practice for Earthworks BS 6031 200928;
- Safeguarding our soils: A strategy for England 2011<sup>209</sup>;
- CIRIA The SuDS Manual (C753)<sup>210</sup>;
- CIRIA Environmental Good Practice on Site (C741)<sup>211</sup>;
- Department of Communities and Local Government (DCLG) Planning practice guidance: flood risk and coastal change 2017<sup>212</sup>;
- National Highways' Design Manual for Roads and Bridges (DMRB) LA 113 – Road drainage and the water environment, formerly HD45/09, Revision 1, 2020<sup>213</sup>;
- Environment Agency (EA) Guidance for Pollution Prevention<sup>214</sup>;
- National Flood and Coastal Erosion Risk Management Strategy 2022<sup>215</sup>;

- EA Peak river flow climate change allowances by management catchment 2022<sup>216</sup>;
- EA Peak rainfall climate change allowances by management catchment 2022<sup>217</sup>;
- Discharges to surface water and groundwater: environmental permits<sup>218</sup>;
- EA guidance on applying for a water abstraction or impounding licence<sup>219</sup>;
- Uttlesford District Council Local Development plan (2005);
- Essex County Council Preliminary Flood Risk Assessment (2017)<sup>220</sup>;
- Essex County Council Local Flood Risk Management Strategy (2018)<sup>221</sup>;
- Uttlesford District Council: Level 1 Strategic Flood Risk Assessment (2024)<sup>222</sup>;
- Uttlesford District Council: Level 2 Strategic Flood Risk Assessment (2024)<sup>223</sup>; and
- The Sustainable Drainage Systems (SuDS) Design Guide for Essex<sup>224</sup>.

### 16.3 PRELIMINARY BASELINE CONDITIONS

#### Data Sources

16.3.2 The EIA will present detailed information on the water resources and flood risk of the Proposed Development following the review and analysis of the following data sources:

- Ordnance Survey (OS) mapping;
- National Rivers Flow Archive (NRFA)<sup>225</sup>;
- EA Catchment Data Explorer<sup>226</sup>;
- British Geological Survey (BGS) Borehole and Geology Mapping<sup>227</sup>;
- BGS Groundwater Flooding<sup>228</sup>;
- Flood Map for Planning<sup>229</sup>;
- EA Long Term Flood Risk Map (including flood risk from surface water and reservoirs)<sup>230</sup>;
- EA Catchment Data Explorer<sup>231</sup>;

- Uttlesford District Level 1 Strategic Flood Risk Assessment Appendix E (2024)<sup>232</sup>;
- EA Recorded Flood Outlines<sup>233</sup>;
- EA Historic Flood Map<sup>234</sup>; and
- AIMS Spatial Flood Defences<sup>235</sup>.

### Proposed Study Area

- 16.3.3 The study area for the water resources and flood risk chapter, hereafter referred to as the 'Study Area', is shown in **Figure 16.1**. The Study Area was determined by source-pathway-receptor (SPR) risk assessment i.e. considering the potential hydraulic connections to surface water features, including WFD surface water bodies, from construction activities and permanent features of the Proposed Development, as well as pollution impact pathways to the wider environment, and in particular high value receptors, such as designated sites.
- 16.3.4 Based on this assessment, a 1 km buffer from the Site is considered sufficient to capture all of the receptors that could potentially be affected by impacts on surface water resources and flood risk arising from the construction, operation (and maintenance) and decommissioning of the Proposed Development.

### Preliminary Baseline Conditions

- 16.3.5 Due to the lack of variance of water resources and flood risk across sections HG1-3, the preliminary baseline conditions for each section have been combined based on the receptor for this chapter. The surface watercourses within the Study Area are shown on **Figure 16.1**.

### Surface Watercourses

- 16.3.6 The EA Catchment Data Explorer shows that the Study Area is within the Chelmer catchment of the Anglian River Basin District. There is one WFD designated watercourse which is adjacent to HG1 and HG2, the River Ter. This is not designated as artificial or heavily modified.
- 16.3.7 The River Ter (WFD ID GB105037033940) flows adjacent to HG1 and HG2. HG3 is located approximately 300 m west of the River Ter. The River Ter flows southeasterly from its source approximately 3.5 km northwest of the Study Area. It flows beneath the A120

approximately 300 m northwest of the Site before reemerging adjacent to HG2. It continues to travel southeasterly to a confluence with the River Chelmer approximately 15 km from the Site.

- 16.3.8 The nearest National River Flow Archives (NRFA) gauging station (ID 37003) is located along the River Ter at Crabbs Bridge approximately 12.8 km downstream and southeast of HG1, which has a record range from 1932 to 2023. From 1932-1964 a former, less accurate station Hatfield Peverel was used, however it is not included in the peak flow data. The average gauged flow for the station is 0.304 m<sup>3</sup>/s. The flow that is exceeded 95% of the time (Q95) is 0.04 m<sup>3</sup>/s and the lowest flow that is exceeded 5% of the time is 1.12 m<sup>3</sup>/s. The peak recorded flow at the gauging station is 9.68 m<sup>3</sup>/s which was recorded on 31/05/2012.
- 16.3.9 The average flow per year over the last ten years until September 2023 (nearest dataset) is shown in **Table 16.1**.

**Table 16.1 Average flow at Crabbs Bridge on the River Ter**

Year	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	2022-2023
Mean Flow (m <sup>3</sup> /s)	0.90	0.57	0.40	0.18	0.44	0.11	0.50	0.62	0.25	0.43

- 16.3.10 There is a network of undesignated tributaries within all three sections, which typically comprise small streams and open surface water field drains, in addition to numerous ponds and standing surface waters. There are no designated WFD lakes within the Study Area.
- 16.3.11 The WFD Watercourses and WFD Catchments within the Study Area are shown in **Figure 16.3**.

## Water Quality

- 16.3.12 The ecological classification of the River Ter, the only WFD watercourse within the Study Area, has been sourced from the EA Catchment Data Explorer. WFD watercourses are assigned an ecological status from high to bad (high, good, moderate, poor, bad).

The River Ter's ecological classification was moderate in both 2019 and in 2022.

- 16.3.13 An EA water quality archive data<sup>236</sup> reveals a measuring station is situated near Molehill Green on the River Ter, approximately 850 m south of the Site, which provides further details on the water quality. Outputs from this station for 15/01/2025 (most recent results at the time of writing) are shown in **Table 16.2**.

**Table 16.2 Water quality data from EA monitoring station at Molehill Green**

Dissolved Oxygen	Nitrate	Phosphate	Water Temperature
11.2 mg/l	6.77 mg/l	0.05 mg/l	6.1 °C
pH	Nitrogen	Phosphorous	Nitrite
8.26	7.2 mg/l	0.054 mg/l	0.027 mg/l

- 16.3.14 Approximately 150 samples (varies with small gaps in data) of the River Ter have been conducted by the EA at Molehill Green. This began in February 2022 and is still ongoing. The maximum, minimum and mean values of water quality factors over the last three years are shown in **Table 16.3**.

**Table 16.3 Water quality on the River Ter Since February 2022**

Dissolved Oxygen (mg/l)			Nitrate (mg/l)			Phosphate (mg/l)			Water Temperature (°C)		
Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
13	4.78	9.5	25	0.2	5.19	0.41	0.039	0.11	19.5	1.1	11.3
pH			Nitrogen (mg/l)			Phosphorous (mg/l)			Nitrite (mg/l)		
Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean	Max.	Min.	Mean
8.33	7.54	7.98	26	0.33	5.97	0.43	0.042	0.12	0.087	<0.004	0.023

## Flood Risk

- 16.3.15 The Flood Map for Planning shows that the Study Area is predominantly located in Flood Zone 1, land defined as having a river or sea flooding Annual Exceedance Probability (AEP) of less than 1 in 1,000 (0.1%). Areas of Flood Zone 2 (land with an AEP between 1.0% and 0.1%) and Flood Zone 3 (land with an AEP of 1.0% or higher from rivers or 0.5% from the sea) are present on HG2 parcels which border the River Ter. HG1 and HG3 are within Flood Zone 1. The flood zones at the Site are shown in **Figure 16.4**.
- 16.3.16 The EA Spatial Flood Defences shows that the River Ter has flood defences running along the entirety of the banks of the watercourse. The standard of protection is designed to protect against a 10% AEP (1 in 10-year) flooding event. The flood defences on the River Ter currently have a design condition score of 3, defined as 'fair'<sup>237</sup>.
- 16.3.17 The EA historic flood map shows the maximum extent of individual Recorded Flood Outlines from river, the sea and groundwater springs that meet a set criterion. There are no recorded flood events within the Study Area.
- 16.3.18 The EA Risk of Flooding from Surface Water dataset shows that the risk of surface water flooding across all three sections is generally very low (an AEP of less than 0.1%), with isolated areas with low (0.1% to 1% AEP), medium (AEP of 1% to 3%) and high (AEP greater than 3.3%) which correlate to areas of low topography, the channels of watercourses and surface water ponds.
- 16.3.19 Appendix E of the Uttlesford SFRA<sup>238</sup> shows the Study Area as considered not at risk of groundwater flooding.
- 16.3.20 The EA's Long Term Flood Risk Map indicates that all three sections are predicted to remain free from flooding in the event of a reservoir breach on both a 'wet day' (where reservoir breach occurs if a river is already experiencing an extreme natural flood) and a 'dry day' (if reservoir flooding were to occur when river levels are at normal levels).

## Water Supplies

- 16.3.21 HG1, HG2 and HG3 are located entirely within the River Chelmer and Blackwater Drinking Water Safeguard Zone (ID: SWSGZ1029);

current pressures on this zone are Pesticides (Carbetamide, Clopyralid, Metaldehyde, Propyzamide) and Nitrate. All three sections are not located within a groundwater Drinking Water Safeguard Zone.

- 16.3.22 As part of the EIA further details on public and private water supplies and abstractions will be obtained from the EA, local authorities, utility providers and other consultees where appropriate.

### Designated Sites

- 16.3.23 There are no designated sites within the Study Area.

### Hydrogeology

- 16.3.24 HG1 is partially underlain by the Essex gravels WFD groundwater body (ID: GB40503G000400). HG2 parcels are underlain by the same groundwater body, mainly surrounding the River Ter. There is also a small part of HG3 that is underlain by this groundwater body. This groundwater body has a WFD status of poor as of 2019. The rest of the Site is not underlain by a WFD groundwater body. The WFD Groundwater Body within HG1 is shown in **Figure 16.6**.
- 16.3.25 HG1 is entirely within groundwater protection zone 3, which is defined as the total area needed to support the abstraction or discharge from a protected groundwater source.
- 16.3.26 HG2 is predominantly within groundwater protection zone 3.
- 16.3.27 The nearest groundwater protected source to HG1 and HG2 is 4 km east in Braintree.
- 16.3.28 HG3 is predominantly within groundwater protection zone 3.
- 16.3.29 The nearest groundwater protected source to HG3 is 5 km east in Braintree and 5 km west in Great Dunmow.
- 16.3.30 Groundwater Source Protection Zones within the Study Area are shown **Figure 16.7**.
- 16.3.31 The BGS Hydrogeology 625K digital hydrogeological map of the UK shows that the Study Area is located entirely within the Thames group, which are rock structures with essentially no groundwater that are predominantly a clayey sequence up to 140 m thick confining underlying aquifers.

## 16.4 TECHNICAL SCOPE AND APPROACH TO EIA

16.4.1 The approach for the assessment has been developed based on a SPR methodology, where the sensitivity of the water resources and flood risk receptors and the magnitude of potential change (impact) upon those receptors is identified within the Study Area.

### Assessment of Effects Methodology

#### Receptors

16.4.2 The water resources and flood risk receptors which have the potential to be subject to impacts as a result of the Proposed Development and therefore which will be assessed within the EIA are:

- Surface watercourses and waterbodies;
- Groundwater;
- Flood risk at the Site (from a range of sources);
- Flood risk elsewhere (from a range of sources);
- Water abstractions and supplies;
- Private Water Supplies; and
- Public water supplies/abstractions.

#### Sensitivity of Receptors

16.4.3 The significance of an effect is defined by the magnitude of the impact and the overall value (or importance) and sensitivity (to the particular impact) of the receiving water feature or receptor.

16.4.4 The sensitivity of the baseline receptors to impacts, together with the value (or importance) of environmental features on, or near to, the Study Area, has been assessed in line with best practice guidance, legislation, and statutory designations.

16.4.5 **Table 16.4** details the framework used to assign an overall value to each of the baseline receptors.

**Table 16.4 Framework for Determining Sensitivity of Receptors**

Sensitivity of Receptor	Definition
High.	<ul style="list-style-type: none"> <li>• A large, medium or small waterbody with an EA water quality classification of 'Good or 'High'.</li> </ul>

Sensitivity of Receptor	Definition
	<ul style="list-style-type: none"> <li>• The hydrological receptor and downstream environment have limited capacity to attenuate natural fluctuations in hydrochemistry and cannot absorb further changes without fundamentally altering its baseline characteristics / natural processes.</li> <li>• The hydrological receptor will support abstractions for public water supply or private water abstractions for more than 25 people and/ or is used for the mass-production of food and drinks.</li> <li>• The hydrological, geological or geomorphological receptor is of high environmental importance or is designated as having national or international importance, such as Special Areas of Conservation (SAC) and Site of Special Scientific Interest (SSSIs).</li> <li>• The receptor acts as an active floodplain or other flood defence or is located within an active, undefended flood plain, in accordance with the NPPF or SFRA.</li> </ul>
Medium.	<ul style="list-style-type: none"> <li>• A large, medium or small waterbody with an EA water quality classification of 'Moderate'.</li> <li>• The hydrological receptor and downstream environment will have moderate capacity to attenuate natural fluctuations in hydrochemistry but cannot absorb certain changes without fundamentally altering its baseline characteristics / natural processes.</li> <li>• The hydrological receptor does not act as an active floodplain or other flood defence.</li> <li>• The hydrological receptor supports abstractions for public water supply or private water abstractions for up to 25 people.</li> <li>• The hydrological receptor is of regional environmental importance (such as LNRs), as defined by the Environment Agency or Natural England.</li> </ul>
Low.	<ul style="list-style-type: none"> <li>• A large, medium or small water body with an EA Quality classification of 'Poor' or 'Bad' and / or a Current Chemical Quality classification of 'Fail'.</li> <li>• The hydrological receptor and downstream environment will have capacity to attenuate natural fluctuations in hydrochemistry but can absorb any changes without fundamentally altering its baseline characteristics / natural processes.</li> </ul>

Sensitivity of Receptor	Definition
	<ul style="list-style-type: none"> <li>• The hydrological receptor is not of regional, national or international environmental importance.</li> <li>• The hydrological receptor is not designated for supporting freshwater ecological interest.</li> <li>• The hydrological receptor does not act as an active floodplain or other flood defence.</li> <li>• The hydrological receptor is not used for recreational use.</li> <li>• The hydrological receptor does not support abstractions for public water supply or private water abstractions.</li> </ul>
Negligible.	<ul style="list-style-type: none"> <li>• The receptor is resistant to change and is of little environmental value.</li> </ul>

## Magnitude of Change

16.4.6 The potential magnitude of change to the receptor will be identified through consideration of the activities associated with the Proposed Development, the degree of change to baseline conditions it affects, and the duration and reversibility of a resultant effect, in accordance with best practice guidance and legislation.

16.4.7 The criteria for assessing the magnitude of change to the receptor is presented in **Table 16.5**. If an impact falls into two different categories, the assessment will be undertaken using the greater of the two categories.

**Table 16.5 Framework for Determining Magnitude of Change**

Magnitude of Change	Definition
High	<ul style="list-style-type: none"> <li>• A short or long-term major shift in hydrochemistry or hydrological conditions sufficient to negatively change the ecology of the receptor. This change will equate to a downgrading of an EA water quality classification by two classes e.g. from 'High' to 'Moderate'.</li> <li>• A sufficient material increase in the probability of flooding onsite and offsite, adding to the area of land which requires protection by flood prevention measures or affecting the ability of the functional flood plain to</li> </ul>

Magnitude of Change	Definition
	<p>attenuate the effects of flooding by storing flood water (in accordance with NPS EN-1 Section 5.8 and NPPF 2023 paragraphs 165 to 175).</p> <ul style="list-style-type: none"> <li>• The yield of existing supplies may be lost or major long-term or short-term reduction in quantity and/ or deterioration in quality.</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• A short or long term non-fundamental change to the hydrochemistry or hydrological environment, resulting in a change in ecological status. This change will equate to a downgrading of an EA water quality classification by one class e.g. from 'High' to 'Good.'</li> <li>• A moderate increase in the probability of flooding onsite and offsite, adding to the area of land which requires protection by flood prevention measures or affecting the ability of the functional flood plain to attenuate the effects of flooding by storing flood water.</li> <li>• The yield of existing supplies may be reduced or quality slightly deteriorated.</li> <li>• Fundamental negative changes to local habitats may occur, resulting in impaired functionality.</li> </ul>
Low	<ul style="list-style-type: none"> <li>• A detectable non-detrimental change to the baseline hydrochemistry or hydrological environment. This change will not result in a downgrading of the EA water quality classification.</li> <li>• A marginal increase in the probability of flooding onsite and offsite, adding to the area of land which requires protection by flood prevention measures or affecting the ability of the functional flood plain to attenuate the effects of flooding by storing flood water (in accordance with NPS EN-1 Section 5.8 and NPPF paragraphs 155 to 165).</li> <li>• A detectable but non-material effect on the receptor such that the functionality of the receptor will not be affected in the medium or long term.</li> </ul>
Negligible	<ul style="list-style-type: none"> <li>• A barely distinguishable or no change from baseline conditions.</li> <li>• No perceptible changes to the baseline hydrochemistry or hydrological environment.</li> <li>• No change to the EA water quality classification.</li> <li>• No increase in the probability of flooding onsite and offsite.</li> </ul>

Magnitude of Change	Definition
	<ul style="list-style-type: none"> <li>• A slight or negligible change from baseline condition of geological resources; change hardly discernible, approximating to a situation of 'no change' in geological condition.</li> </ul>

## Assessment of Effect Significance

16.4.8 The significance of effect is a product of the receptor's sensitivity and magnitude of impact. The significance of effect can be either significant (major or medium effects) or not significant (minor or negligible effects) as outlined in **Chapter 6**, Section 6.5 and **Table 6.1**. The significance of effect will take into consideration embedded mitigation set out. If further mitigation is required, a residual significance of effect will be stated.

## Desk Based Study Methodology

16.4.9 A desk-based study has been conducted to inform this chapter and will be expanded on in future assessment. This will include groundwater supported resources and habitats, public and private water supplies, surface water flows, flooding, rainfall data, and water quality data. A review of published geological maps, OS maps, aerial photographs and site-specific data such as a site hydrological survey, habitat mapping, hydrogeological reports, digital terrain models and geological literature will also be completed.

## Survey Methodology

16.4.10 Site-based walkover surveys will be conducted to:

- Verify the findings of desk-based studies;
- Identify and assess the key surface water characteristics and flowpath networks;
- Visually assess primary surface water catchments and verify private water supplies (where appropriate), and any other abstractions that could be affected by the Proposed Development;
- Visually assess and verify GWDTE locations (if available at the time of survey) and their potential to be groundwater or ombitrophic (rainwater) fed; and

- Visit locations of any proposed watercourse crossings.

16.4.11 The results of the Site-based survey will be used to identify possible constraints and to inform the design of the Proposed Development.

### Flood Risk Assessment

16.4.12 The NPS requires all possible forms of flood risk to be considered within FRAs to ensure that all potential flooding sources are accounted for. Flooding sources are based on the NPPF which lists the six forms of flooding that should be assessed. As such an FRA will be completed as part of the EIA as a technical appendix to the water resource and flood risk chapter. The FRA will assess the risk of flooding at the Site and the potential to increase flood risk elsewhere in relation to each of the different forms of flooding listed within the NPPF which are outlined in **Table 16.6**.

**Table 16.6 Forms of Flooding to be Assessed within the Flood Risk Assessment**

Flood Source	Explanation
Fluvial	Watercourse flooding occurs where the water volumes and flows within a watercourse exceed the flow capacity of the channel of the watercourse. This can gradually or rapidly develop depending on the land use, topography, and climate within the catchment of the watercourse. Where land is protected by flood defences flooding can occur when defences are overtopped or breached.
Tidal and Coastal	Storm surges and high tides cause flooding of low-lying land in coastal locations. Where land is protected by flood defences flooding can occur when defences are overtopped or breached.
Pluvial	Intense rainfall over land that has a limited capacity to absorb water or does not have sufficient surface water drainage infrastructure can lead to water to quickly run off the surface and result in localised flooding. Where there are areas of concentrated development and hard standing, pluvial flooding is more likely to occur due to the reduction in porosity of underlying grounds.

Flood Source	Explanation
Groundwater	Where the groundwater table exceeds the surface ground level. This is most likely to occur in areas that are underlain by permeable geology (known as aquifers).
Sewers	Where the capacity of a sewer system is exceeded by extreme rainfall and/or runoff or through blockage.
Artificial Waterbodies	Sources such as reservoirs, canals, and lakes. This form of flooding can occur through the infrastructure being overwhelmed or because of a failure.

16.4.13 In assessing flood risk to and from the Proposed Development, flood risk sources will be appraised and classed as the following:

- 'Negligible' (where little or no risk is identified);
- 'Low' (where theoretical risk is identified but mitigating factors may influence flood levels); or
- 'Medium' to 'High' (where modelled levels or historical events show risk).

16.4.14 This approach will consider several factors when attributing the residual risk of flooding to the Proposed Development, including:

- Depth of flooding;
- Flooding extent / ingress into Site;
- Type of infrastructure affected; and
- Intervening structures / flood protection.

16.4.15 The FRA will assess the potential risk of flooding which accounts for increases in rainfall and river levels due to climate change. The climate change allowances to be applied will be the allowances for the Combined Essex Management catchment based on the EA climate change allowances for peak rainfall and peak river flow. The Proposed Development is defined as Essential Infrastructure based on flood risk and coastal change guidance<sup>239</sup>. Therefore, the higher central climate change allowance will be applied for the appropriate design year dependent on the lifetime of the Proposed Development in accordance with EA FRA climate change allowances guidance.

- 16.4.16 A sequential design approach will be applied to locate infrastructure within Flood Zone 1 wherever possible. Where it is not possible to locate infrastructure within Flood Zone 1 hydraulic modelling outputs will be obtained from the EA to identify flood extents and ensure infrastructure is not located within Flood Zone 3b where modelling results provide flood extents for a 1 in 20-year event.
- 16.4.17 In accordance with Section 5.8 NPS E-1, the FRA will delineate Flood Zones 3a and 3b and avoid infrastructure within 3b wherever feasible. Section 5.8 of NPS E-1 states that energy projects should not normally be consented within Flood Zone 3b, except in cases where development will not result in a net loss of floodplain storage and will not impede water flows. This guidance also requires the sustainable drainage scheme to be described and to confirm that a significant effect will not occur from any type of flood risk, either to or from the Proposed Development, when taking into account relevant climate change factors. Therefore, should any infrastructure be located within Flood Zone 3b, details of proposed mitigation to prevent a decrease in floodplain storage volumes and flood water flow regimes will be provided as part of the FRA.
- 16.4.18 Where localised and detailed flood modelling outputs are available, the Proposed Development will be designed to remain operational without resulting in an increase in flood risk elsewhere in a 1 in 100-year plus climate change event. Whilst the Main Rivers within the Site are anticipated to have been assessed within localised and detailed flood modelling studies it is anticipated that Flood Zones 2 and 3 around the smaller watercourses throughout the Site are derived from national scale JFLOW modelling data results. Acknowledging the raised nature and limited footprint of the solar PV modules it is proposed that the FRA will use the 1 in 1,000-year JFLOW extents and depths as a proxy for the 1 in 100-year plus climate change scenarios for flooding from watercourses which are not EA designated Main Rivers and not subject to localised flood modelling studies.
- 16.4.19 The EA will be consulted with as part of the FRA and will advise if there is a need for hydraulic modelling.

### **Surface Water Drainage Strategy**

- 16.4.20 An Outline Surface Water Drainage Strategy (OSWDS) will be developed as part of the EIA as an appendix to the water resources

and flood risk chapter. The OSWDS will develop an initial drainage approach to ensure there is no significant increase in surface water runoff from the Proposed Development up to and including the 1 in 100-year (1%) scenario plus an appropriate allowance for climate change.

- 16.4.21 The principles of the OSWDS will be used to inform the final Surface Water Drainage Strategy (SWDS) to be developed by the Principal Contractor during the detailed design phase and which will manage surface water runoff from the Site during the operational phase of the Proposed Development. The SWDS will be secured through a DCO requirement.
- 16.4.22 The SWDS will incorporate Sustainable Drainage Systems (SuDS) principles into the design to ensure that runoff from hardstanding areas does not result in an increase in flood risk elsewhere, whilst also accounting for the design principles set out in national and local policy and guidance.
- 16.4.23 SuDS design will be compliant with the SuDS design guide for Essex<sup>240</sup>. The example surface water drainage measures for solar farms set out in the guidance<sup>240</sup>, includes:
- The use of SuDS features such as buffers, swales, filter strips, and filter drains to interrupt and slow the channelised flows, enhance and promote the infiltration and interception capacity, and to help spread the water over a greater surface area;
  - Maintaining vegetative areas in between the solar arrays at a long length to help interrupt and slow the channelised flows, reducing erosion and also enhance and promote the infiltration and interception capacity. Where possible bare ground or gravel should be avoided;
  - Where ground conditions allow, the inclusion of infiltration basins and strips to capture any additional flows carried by the created channels which would have previously been infiltrated;
  - The incorporation of bunds to help slow and interrupt the surface water flows; and
  - An enforceable and robust soil, grass, and/or land management plan to keep land in good condition. If the ground becomes bare due to lack of maintenance the peak discharge has the potential to increase significantly.

- 16.4.24 The solar PV arrays will be installed on metal frames and driven into the ground to limit the footprint of the solar PV modules. The installation of solar PV modules does not result in an increase in hardstanding surfaces at ground level. Instead, the solar PV array are superficial cover, with ground conditions remaining very similar to the existing baseline. As such the SWDS will outline a separate drainage approach for solar PV arrays from the hardstanding areas associated with ancillary infrastructure (e.g. substation, inverters).
- 16.4.25 There is potential for rainwater to run along the face of solar PV arrays and concentrate beneath driplines, leading to channelisation and compaction of soils which can lead to flow routes for surface water during extreme rainfall. The solar PV modules will be designed to include regular gaps to enable rainwater to drip along the face of the panel rather than concentrating along a single drip line. Research completed by Cook and McCuen<sup>241</sup> has shown that the installation of solar PV arrays does not result in a significant increase in runoff volumes or peak flows, however where ground beneath panels is left bare there is potential for an increase in peak discharge. Studies have quantified the increase which ranges from 1.5% to 8.6% depending on specific parameters. Acknowledging the lack of impermeable surface and inclusion of rainwater gaps on the face of solar PV modules, the SWDS will include land management measures such as vegetation and planting beneath panels to intercept and slow down surface water along existing flow routes, rather than a drainage approach which will directly drain from beneath the panels to an attenuation structure or watercourse.
- 16.4.26 The SWDS will establish surface water interception and discharge measures for hardstanding areas in accordance with local and national best practice SuDS guidance and policy which will prevent an increase in surface water runoff and provide protection to the receiving water environment.
- 16.4.27 Prior to the production of the SWDS a consultation workshop will be held with the LLFA to agree on a methodology including attenuation and interception measures, design return periods, discharge rates, climate change allowances and design layouts.

## Water Framework Directive Assessment

- 16.4.28 Due to the presence of a WFD designated waterbody within the Study Area a WFD Assessment will be completed as part of the EIA which will determine the potential for any non-compliance of the Proposed Development with WFD objectives and inform the impact assessment within the EIA. This assessment will include a review and examination of potential effects on the relevant WFD parameters and depending on the outcomes a more detailed assessment may be required, which will be confirmed in consultation with the EA.
- 16.4.29 The methodology for the WFD Assessment will be carried out in accordance with Planning Inspectorate Advice Note Eighteen<sup>242</sup> and the assessment will identify the implications of the Proposed Development on the objectives of the WFD and relevant River Basin Management Plans.

## 16.5 POTENTIAL SIGNIFICANT EFFECTS AND MITIGATION

### Construction and Decommissioning

- 16.5.2 During the construction and decommissioning of the Proposed Development, without the implementation of mitigation, there is the potential for impacts to the water environment and flood risk. It is assumed that the activities during the decommissioning phase will be similar in nature to those during construction. Potential impacts include:
- Reduction in surface water or groundwater quality as a result of chemical pollution, increase in erosion or sedimentation or changes to surface water quantity as a result of impediments to flow due to, for example, soil erosion, onsite spills, excavation works, or insufficient sediment mitigation;
  - Potential effects from watercourse crossings / trenching for the cable route leading to alterations in surface watercourse flows, channel characteristics, and potential for sedimentation of watercourses;
  - Changes to groundwater interflow patterns from temporary works such as physical cut-offs or dewatering for foundations and hardstanding. This could affect groundwater bodies leading to reduced function or severance of flow to wetlands, groundwater fed habitats, and groundwater abstractions;

- Alterations to groundwater interflow patterns and quality from cable route excavations;
- Reduced quantity for water supplies and abstractions due to changes in groundwater, near-surface, or surface water flows; and reduced water quality because of chemical pollution, excavations, or insufficient sediment mitigation;
- Increase in runoff and flood risk due to increased impermeable hardstanding, disruption in watercourse flow patterns (e.g., during the construction of culverts for access), and soil compaction during construction and decommissioning; and
- Cumulative effects if the potential effects arising from the Proposed Development are in combination with other relevant projects or activities.

## Operation

16.5.3 During the operation of the Proposed Development activities are anticipated to be limited to ad-hoc maintenance of infrastructure. As such any potential impacts are anticipated to be of less significance than during the construction and decommissioning phases. The potential impacts which may occur during the operation are:

- Increase in runoff and flood risk due to increased impermeable hardstanding and soil compaction, as well as channelisation of surface water forming beneath the edge of solar PV arrays; and
- Reduction in surface water quality as a result of chemical pollution from PV arrays and ancillary infrastructure and maintenance.

## Other effects associated with Water Resources and Flood Risk

16.5.4 Potential effects on the water environment may have secondary effects on ecological receptors, however mitigation to avoid this will be detailed in the water resources and flood risk chapter. Potential effects relating to ecological receptors will be assessed within the biodiversity and nature conservation chapter and not in the Water Resources and Flood Risk chapter.

16.5.5 Potential effects relating to soils, ground conditions and contaminated land are to be assessed within **the** ground conditions and land quality and are therefore not assessed in the Water Resources and Flood Risk chapter. Whilst there is potential for in-combination effects between Water Resources and Flood Risk, and Soils, Ground Conditions and

Contaminated Land, based on the nature of the Proposed Development and the existing arable farmland land use, any in combination effect is unlikely to lead to a significant impact. Furthermore in-combination effects will be assessed as part of the EIA.

## **Mitigation**

- 16.5.6 A sequential approach was incorporated into the site selection process to avoid environmental constraints including constraints related to flood risk and water resources. Further details of the sequential test will be provided as part of the PEIR and ES.
- 16.5.7 Embedded mitigation measures will be incorporated into the design of the Proposed Development as part of the sequential design process. The mitigation measures relating to water resources and flood risk which will be embedded into the design and construction of the Proposed Development are detailed below.

## **Surface Water Drainage**

- 16.5.8 An OWWDS will be completed as part of the EIA to confirm the change in surface water runoff between the baseline conditions and after construction of the Proposed Development.
- 16.5.9 The OSWDS will outline the attenuation requirements based on the calculated runoff rates. As solar PV modules sit on narrow footed frames it is proposed that solar PV modules will not contribute towards hard standing areas within the Site on the basis that suitable surface water management techniques typical of solar developments are implemented, which will be detailed within the OSWDS. Any new access tracks forming part of the Proposed Development will be made up of a permeable aggregate (e.g. Type 2) and will therefore also not contribute to hard standing areas. As such the OSWDS scope will focus on hard standing areas associated with the ancillary infrastructure.

## **Watercourse Buffers**

- 16.5.10 The design will incorporate the following minimum buffer zones around watercourses in accordance with the Uttlesford Local Plan, within which no infrastructure will be located (excluding fencing, watercourse crossings, and biodiversity and landscape measures where required):

- 15 m buffer (from banktop) around EA designated Main Rivers, LLFA designated Ordinary Watercourses, other natural surface watercourses (e.g. open surface water streams) or artificial ditches more than 5 m in width. Any infrastructure located within 8 m of an EA designated Main River will require a permit from the EA, and any infrastructure which may impede the flow or quality conditions of Ordinary Watercourses will require consent from the LLFA;
- 10 m buffer (from banktop) around artificial watercourses and ditches which are less than 5 m in width.

16.5.11 During the construction of the Proposed Development the Principal Contractor will maintain buffers around watercourses protect them from increased sediment loadings and contamination.

16.5.12 The mitigation measures listed above will be embedded into the design and construction of the Proposed Development via the implementation of CEMP and a DEMP which will be secured via a DCO requirement. An outline CEMP will be included in the ES.

### ***Construction Environmental Management Plan***

16.5.13 Prior to the construction phase, the Principal Contractor will produce a CEMP which will incorporate specific measures based on the recommendations of the EIA and best practice guidance to minimise potential effects on water resources and flood risk during construction.

16.5.14 The measures to be implemented through the CEMP are likely to include:

- Drainage where construction vehicles and fuels are stored which will direct flows to an oil interceptor to prevent pollution in the event of any spillage;
- A construction phase surface water drainage system which will incorporate elements of Sustainable Drainage Systems (SuDS) to replicate natural drainage patterns, prevent increases in surface water runoff and store surface water along the drainage network through lagoons or attenuation ponds prior to discharge outlets;
- Access track swales and drainage ditches with outlets at specified intervals to reduce the volume of water within a single channel and therefore reduce the potential of erosion;

- Best practice measures for chemical storage including oils, fuel and concrete will be put in place, including bunding of construction compounds, the use of spill kits and absorbent pads, and the use of geotextile membranes in chemical storage areas;
- Best practice drainage and sediment management measures including the use of check dams, settlement lagoons, and silt fencing and mats;
- Stockpiled material will be stored at least 50 m from watercourses in order to reduce the potential of sediment transport into the wider water environment, with regular inspection to ensure erosions is not taking place;
- The establishment of a surface and groundwater monitoring program at locations on principal watercourses downstream of the Proposed Development and control points, which will be based on methodology and frequency agreed with the EA (if required); and
- Includes an emergency spill response procedure.

### ***Decommissioning Environmental Management Plan***

16.5.15 Prior to the decommissioning phase, the relevant appointed contractor will produce a DEMP which will incorporate specific measures based on the recommendations of the EIA and best practice guidance to minimise potential effects on water resources and flood risk during decommissioning.

## **16.6 PROPOSED SCOPE OF THE EIA**

16.6.1 On the basis of the likely sensitive receptors and aspects of the Proposed Development, the potential effects proposed to be scoped into and out of the EIA for this topic are presented in **Tables 16.7** and **16.8**.

**Table 16.7 Elements of the Water Resources and Flood Risk Assessment Proposed to be Scoped In to the EIA**

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
<b>Construction, Operation, and Decommissioning Phases</b>		

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
Reduction in surface water quality and/or quantity.	Scoped In.	Potential reduction in surface water or groundwater quality/quantity from the Proposed Development through chemical pollution, increase in erosion or sedimentation or impediments to flow due to, for example, soil erosion, onsite spills, excavation works or insufficient sediment mitigation.
Changes to (including potential reductions in) groundwater interflow patterns, groundwater quantity, and groundwater quality from temporary works, infrastructure, and cable route excavations.	Scoped In.	Changes to groundwater interflow patterns from temporary works is possible due to the Proposed Development. This involves physical cut-offs or dewatering for foundations and hardstanding, affecting the groundwater body and leading to reduced function of or severance of flow to wetlands, groundwater fed habitats, and groundwater abstractions.
Watercourse crossing/trenching for the cable route leading to alterations to surface watercourse flows and characteristics.	Scoped In.	Watercourse crossings and construction of the chosen Cable Option has potential to alter surface watercourse flows, flood risk, channel characteristics, and sedimentation in the watercourse.
Reduced quality or quantity of supply for water supplies and abstractions.	Scoped In.	Potential impacts on PWS, public water supplies and abstraction is possible from the Proposed Development as further investigation into these will be included in the report.

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
Increase in runoff and flood risk.	Scoped In.	An increase in runoff and flood risk is possible from the Proposed Development due to increased impermeable hardstanding, disruption in watercourse flow patterns (e.g., during the construction of culverts for access) and soil compaction.
Cumulative effects due to other developments.	Scoped In.	Cumulative effects if the potential effects arising from the Proposed Development are in combination with other relevant projects or activities.

**Table 16.8 Elements of the Water Resources and Flood Risk Assessment Proposed to be Scoped Out of the EIA**

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
<b>Construction, Operation, and Decommissioning Phases</b>		
Impacts on wastewater supplies.	Scoped Out.	Throughout all phases of the Proposed Development, it is anticipated that wastewater will be sourced and disposed of using temporary measures without the need to connect to existing wastewater networks. As there will be no connection to existing networks there will be no additional demand placed on the supply and receiving capacity of wastewater networks within the Study Area, and potential effects relating to potable and wastewater supplies are scoped out.
Impacts on Designated sites.	Scoped Out.	No designated sites have been identified within the Study Area.

## 16.7 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTIES

- The flood risk receptors which will be assessed in the EIA and FRA will include the Proposed Development itself and other land, property and infrastructure which has the potential to be at an increased risk of flooding as a result of the Proposed Development;
- The need for hydraulic modelling as part of the FRA will be agreed with the EA;
- A walkover survey will be completed to ground truth the desk-based study;
- At the time of writing the method wastewater discharge and management is not yet confirmed. Acknowledging the nature of the development it is anticipated during all phases of the Proposed Development wastewater will be managed using a licensed temporary waste and welfare unit and there will be no connection to a public sewer network or release of wastewater into the water environment;
- It is assumed the next phases of design will incorporate the embedded mitigation which includes suitable watercourse buffers and locating infrastructure outwith the EA Flood Zones; and
- Limited information is known about public and private water supplies and abstractions at the time of scoping.

## 17. OTHER ENVIRONMENTAL TOPICS

### 17.1 INTRODUCTION

- 17.1.1 This chapter will address potential environmental impacts of the Proposed Development for which significant effects can be quickly established to be not likely, without the need for detailed information on legislation and policy, methodology and baseline conditions to be provided.
- 17.1.2 The EIA methodology described in **Chapter 6** will therefore not be applied to this chapter. In cases where a preliminary or screening assessment indicates that impacts are likely to be negligible or absent, it may not be necessary to outline detailed assessment methodologies or baseline conditions.
- 17.1.3 The 'Other Environmental Topics' chapter of the ES will provide a brief assessment of each topic listed below.
- 17.1.4 These topics will each be supported by technical notes appended to the ES, which will present further information to substantiate the conclusions reached in the chapter.
- 17.1.5 For clarity, the topics discussed in the following sections are not scoped out of the EIA. Rather, they are addressed proportionately within the ES, in line with the current understanding of the potential for significant effects based on the scoping work undertaken to date.
- 17.1.6 This approach to consideration of other environmental topics is supported by the Planning Inspectorate's Technical Advice for Scoping Solar Developments<sup>243</sup> which advocates for a proportionate scope for Solar EIAs.

### 17.2 WASTE

#### Introduction

- 17.2.2 This section sets out the baseline conditions, potential effects, mitigation and assessment methodology for waste generation and management for the Proposed Development. The potential effects of the Proposed Development in the context of waste have been identified through a technical review of the current design, construction, operational (including maintenance) and decommissioning phases of the Proposed Development.

- 17.2.3 The assessment will focus on the potential for waste generated in the construction and operational phase of the Proposed Development to present risks to receptors, or to the risk of exceeding the planned landfill capacity in the Essex Region.

### **Topic-specific Legislation, Policy and Guidance**

- 17.2.4 This scope of the waste assessment will where relevant, be undertaken in accordance with the following key legislation, policy and associated guidance:

### **Legislation**

#### ***Control of Pollution (Amendment) Act 1989*<sup>244</sup>**

- 17.2.5 The Control of Pollution (Amendment) Act 1989 aims to “*provide for the registration of carriers of controlled waste and to make further provision with respect to the powers exercisable in relation to vehicles shown to have been used for illegal waste disposal*”. It is an offence for anyone who is not a registered carrier of controlled waste to transport any controlled waste to or from a place in Great Britain whether for profit or for business.

#### ***Waste (England and Wales) Regulations (2011)*<sup>245</sup>**

- 17.2.6 The Waste (England & Wales) Regulations 2011 update earlier aspects of waste controls and emphasise the need for waste permits and authorisations for certain activities. The Waste Regulations (2011) aim to protect the environment and human health by preventing or reducing the generation of waste, reducing the adverse impacts of the generation and management of waste, and reducing the overall impacts of resource use.
- 17.2.7 The Waste Regulations (2011) implement the revised WFD (Waste Framework Directive) under the Duty of Care Regulations 1991, and require business to confirm that they have:
- Applied the waste management hierarchy when transferring waste and to include a declaration on their waste transfer note or consignment note;
  - Require a new permit waste hierarchy permit condition and where appropriate a condition relating to the mixing of hazardous waste;

- Introduce a two-tier system for waste carrier and broker registration, which includes those who carry their own waste, and introduces a new concept of a waste dealer;
- Make amendments to hazardous waste controls and definition; and
- Exclude some categories of waste from waste controls, notably animal by-products whilst include a small number of radioactive waste materials.

17.2.8 The Waste Regulations (2011) also set out the principles for putting into place the Waste Hierarchy, seeking to establish practice to reduce the volume of waste sent to landfill as shown on **Plate 17.1**, below.

**Plate 17.1 The Waste Hierarchy (Waste Regulations, 2011)**



17.2.9 In 2014 amendments were introduced to refine and expand upon the 2011 framework. This amendment added regulation 29, which specifies a list of offences that enable authorities to refuse registration of waste carriers, brokers, and dealers. Additionally, it introduced a new section, Part 10A, that outlines requirements for producing and presenting authority for transporting controlled waste. These amendments strengthen enforcement mechanisms and clarify operational procedures within the existing waste management system.

### ***Controlled Waste (England and Wales) Regulations 2012***

17.2.10 Under these regulations, waste from construction or demolition works, including preparatory works are to be classified as 'Industrial', and treated as household waste for the purposes of Section 34(2) and (2A) of the Act only.

### ***The Hazardous Waste (England and Wales) Regulations 2005<sup>246</sup>***

17.2.11 These regulations set out the regime for the control and tracking of hazardous waste in England and Wales. Under these regulations, a process of the registration of hazardous waste producers and a new system for recording the movement of hazardous waste was introduced.

17.2.12 Under the Hazardous Waste Regulations, all industrial and commercial premises producing more than 500 kg of hazardous waste must notify their existence to the Environment Agency (EA). In practice, the EA released updated guidance in this regard in April 2016 which withdrew the need for such notification.

17.2.13 Under the Hazardous Waste Regulations, the movement of wastes is controlled by a documentation system which must be completed whenever waste is removed from premises. From the waste producer's perspective, a Consignment Note must be produced and completed before waste can be removed and the following information must be provided:

- A description of the waste;
- The process giving rise to the waste;
- The quantity of waste;
- The chemical (and/or biological) components and their concentrations;
- The hazard codes, the List of Waste (LoW) code;
- The container type;
- The locations of origin and destination of the waste; and
- The consignment notes with a unique number ('consignment note code').

### ***National Policy Statements***

17.2.14 The NPSs<sup>247</sup> are the primary policy basis for Nationally Significant Infrastructure Project (NSIP) development.

17.2.15 Overarching NPS for Energy (EN-1) is relevant to the Proposed Development in the context of waste management. NPS EN-1 acknowledges that all large infrastructure projects are likely to generate wastes but encourages the protection of human health and the environment by producing less waste and using it as a resource wherever possible. Section 5.15 of NPS EN-1 advocates the implementation of sustainable waste management practices, in line with the Waste Hierarchy (Waste Regulation, 2011). Where disposal is required, waste should be disposed in line with waste management regulations.

***National Planning Policy for Waste<sup>248</sup>***

17.2.16 The National Planning Policy for Waste (NPPW) provides the context for how local authorities should manage waste in their area and sets out considerations that must be considered during planning applications.

17.2.17 The NPPW also sets out detailed waste planning policies to ensure sustainable waste management, emphasises the need to minimise the amount of which arising and supports the reuse and recycling of waste where possible.

***Waste Management Plan for England 2021<sup>249</sup>***

17.2.18 The Waste Management Plan (WMP) for England 2021 fulfils the requirements of the Waste (England and Wales) Regulations 2011 (as amended) for the WMP to be reviewed every six years. It provides an analysis of the current waste management situation in England and evaluates how it will support the implementation of the objectives and provisions of the Waste Regulations (2011). The 2021 Plan also provides an overview of the type, quantity and source of waste generated within England; existing waste collection schemes and major disposal and recovery installations; an assessment of the need for new collection schemes; and general waste management policies.

17.2.19 The 2021 Plan supersedes the previous WMP for England and includes changes to WMP requirements which have been made by the Waste (Circular Economy) (Amendment) Regulations 2020 where appropriate.

## Local Planning Policy

### ***Essex and Southend-on-Sea Waste Local Plan 2017<sup>250</sup>***

17.2.20 The objective of the Essex and Southend-on-Sea Waste Local Plan 2017 is to ensure waste is managed in a way that is least damaging to the environment and helps to maintain the best possible quality of life for residents. Policies adopted by the Essex and Southend-on-Sea Waste Local Plan 2017 are based upon implementation of the key principles of the Waste Hierarchy.

## Guidance

### ***The Definition of Waste: Development Industry Code of Practice (DoW: CoP)<sup>251</sup>***

17.2.21 This Code of Practice (CoP) outlines good practice for the development industry, specifically in assessing whether excavated materials are classified as waste or not and determining when treated excavated waste can cease to be waste for a particular use, all on a site-specific basis. Additionally, it establishes an auditable system to ensure compliance with the principles set forth in this CoP. The EA will take account of this CoP in deciding whether to regulate the materials as waste. If materials are dealt with in accordance with the DoW: CoP, the EA considers that those materials are unlikely to be waste if they are used for the purpose of land development. This may be because the materials were never discarded in the first place, or because they have been submitted to a recovery operation and have been completely recovered so that they have ceased to be waste.

### ***Institute of Environmental Management and Assessment Guide to Material and Waste in EIA<sup>252</sup>***

17.2.22 The Institute of Environmental Management and Assessment (IEMA) Guide to Material and Waste in EIA sets out guidance and significance criteria to assess the potential impacts on a development resulting from disposal of waste to landfill. The guidance advocates the use of one of two assessment methodologies, based on void capacity or landfill diversion. Assessment based on landfill void capacity is the recommended methodology for statutory EIAs.

## Preliminary Baseline Conditions

### Data Sources

- 17.2.23 For the purpose of this Scoping Report, existing baseline data for the Essex region, including landfill capacity, annual volume and nature of waste, has been sourced from the Department for Environment, Food and Rural Affairs' (DEFRA) Waste Data Interrogator and Waste Summary Tables for England<sup>253</sup> and the EA's Remaining Landfill Capacity online dataset<sup>254</sup>.
- 17.2.24 The PEIR and ES will present more detailed information on the baseline waste aspects of the Proposed Development, once further design information is available on the likely nature and volumes of waste which will be generated during each phase of the Proposed Development.

### Proposed Study Area

- 17.2.25 For the purpose of this topic, the Study Area is referred to as the Essex Sub-Region to align with the classification used in the DEFRA and EA waste datasets. This specifically includes the Uttlesford and Braintree districts within the sub-region.

## Preliminary Baseline Conditions

- 17.2.26 The baseline conditions for the assessment will establish the projected total volume and the existing volume of waste materials received by registered landfills, and in the Essex Region. This information will provide a baseline to assess the effects of construction, operation and decommissioning of the Proposed Development on the available landfill capacity, and the volume of waste delivered to receiving landfills annually.
- 17.2.27 A desktop review will provide information on the distance and capacity of registered landfills to determine facilities local to the Proposed Development.

## Existing Landfill Capacity and Inputs

- 17.2.28 The number of operational landfill facilities in the Essex region as of 2023 is shown in **Table 17.1**.

**Table 17.1 Operational Landfill Facilities within Essex Sub-Region (2023)**

District	Essex Sub-Region	Uttlesford District	Braintree District	Other Essex Districts
Number of operational landfill facilities	12	3	0	9

17.2.29 The locations of the operational landfill facilities within the Essex Sub-Region and the Uttlesford District are shown in **Table 17.2**.

**Table 17.2 Operational Landfill Facility Locations**

Facility address	Planning Region	Planning Sub-Region	Local Authority District	Site Type
<b>Uttlesford District</b>				
Highwood Quarry, Little Easton, Great Dunmow, CM6 1SN	East of England	Essex	Uttlesford	L05 - Inert Landfill
Elsenham Landfill, Hall Road, Elsenham, Bishop's Stortford, CM22 6DJ	East of England	Essex	Uttlesford	L04 – Non-Hazardous
Widdington Pit, Hollow Road, Saffron Walden, CB11 3SL	East of England	Essex	Uttlesford	L05 - Inert Landfill
<b>Wider Essex Sub-Region</b>				
Barling Marsh Landfill, Barling Magna, Great	East of England	Essex	Rochford	L04 – Non-Hazardous

<b>Facility address</b>	<b>Planning Region</b>	<b>Planning Sub-Region</b>	<b>Local Authority District</b>	<b>Site Type</b>
Wakering, SS3 0LL				
Bellhouse Landfill, Warren Lane, Stanway, Colchester, CO3 5NN	East of England	Essex	Colchester	L04 – Non-Hazardous
Brightlingsea Inert Landfill	East of England	Essex	Tendring	L05 - Inert Landfill
Dollymans Farm, Doublegate Lane, Rawreth	East of England	Essex	Rochford	L05 - Inert Landfill
Stanway Quarry Landfill, Warren Lane, Stanway, Colchester, CO3 0NN	East of England	Essex	Colchester	L05 - Inert Landfill
SRC Martells Quarry, Slough Lane, Ardleigh, CO7 7RU	East of England	Essex	Tendring	L04 – Non-Hazardous
Pitsea Landfill, Pitsea Hall Lane, Pitsea, Basildon, SS16 4UH	East of England	Essex	Basildon	L04 – Non-Hazardous
Asheldham Quarry, Tillingham Road, Southminster, CM0 7NY	East of England	Essex	Maldon	L05 - Inert Landfill
Royal Oak Quarry, Maldon Road, Woodham Mortimer, CM9 6TJ	East of England	Essex	Maldon	L05 - Inert Landfill

17.2.30 There are no active landfill facilities in the Braintree District.

17.2.31 The total remaining landfill capacity for Uttlesford district and the wider Essex Sub-Region is shown in **Table 17.3**.

**Table 17.3 Remaining Landfill Capacity (End 2023)**

	Remaining Capacity (m <sup>3</sup> , end 2023)				
	Hazardous	Non-Hazardous (SNRHW)*	Non-Hazardous	Restricted	Inert
Uttlesford District	-	-	814,141	-	1,019,006
Essex Sub-Region (Total)	-	-	6,175,324	-	5,738,657

\*SNRHW = stable, non-reactive hazardous waste

## Technical Scope and Approach to EIA

### Topic Specific Assessment Methodologies

17.2.32 The effects of waste generated during construction at the Site will be assessed by:

- Establishing the baseline for landfill capacity in the Uttlesford District and Essex Sub-Region for inert, non-hazardous, stable non-reactive hazardous, and hazardous waste types;
- Estimating the likely quantity of:
  - Surplus excavation material and construction-derived waste likely to be generated during the construction phase of the Proposed Development site;
  - General wastes likely to be generate during operation of the Proposed Development; and
  - The approximate percentages of these materials classified as the relevant waste types (assuming a worst-case scenario).

- Comparing the likely quantities of waste from the Site to the baseline landfill capacity and assessing the effect on the capacity and ability of landfill sites to accept the waste.

### Determining the Significance of Effects

17.2.33 To assess the significance of the Proposed Development on the baseline landfill capacity, the following significance criteria are applied, in line with IEMA guidance<sup>255</sup>:

**Table 17.4 Evaluation of the Significance of the Proposed Development on Landfill Capacity**

Significance of Effect	Criteria for Effects of Waste Generated during Construction and/or Operational Phases	
	Inert / Non-Hazardous Waste	Hazardous Waste
Negligible (Not Significant)	Waste generated by the development will reduce regional landfill capacity by <1%	Waste generated by the development will reduce regional landfill capacity by <0.1%
Minor (Not Significant)	Waste generated by the development will reduce regional landfill capacity by 1 - 5%	Waste generated by the development will reduce regional landfill capacity by 0.1 – 0.5%
Moderate (Significant)	Waste generated by the development will reduce regional landfill capacity by 6 - 10%	Waste generated by the development will reduce regional landfill capacity by 0.5 - 1%
Major (Significant)	Waste generated by the development will reduce regional landfill capacity by >10%	Waste generated by the development will reduce regional landfill capacity by >1%

### Potential Significant Effects and Mitigation

#### Key Sensitivities/ Receptors

17.2.34 Registered landfill sites used by the Proposed Development may be affected by construction, operation and decommissioning works

through a material increase in the volume of waste types received. This is most likely to occur during the construction and decommissioning phase of the Proposed Development, where projected waste volumes are expected to be the highest.

- 17.2.35 Residential receptors on the routes from the Proposed Development to the landfill facilities used may be affected by an increase in traffic during the construction phase. This will be assessed as part of Traffic and Transport Assessment of the ES in **Chapter 15**.
- 17.2.36 At the point of generation, handling and storage of waste may affect soils, surface and groundwater receptors on land used by the Proposed Development during construction and operation. Potential effects on soils and groundwater resources are addressed in **Chapter 11** and on surface water resources in **Chapter 16** of this Scoping Report.
- 17.2.37 Mitigation measures that will be adopted with respect to waste generation and handling will largely comprise standard industry practice focused on the principles for implementing the Waste Hierarchy, seeking to minimise the volume of waste sent to landfill. The disposal of waste, including any surplus spoil, will be managed so far as is reasonably practicable to maximise the environmental and development benefits from the use of surplus material and reduce any adverse environmental effects of disposal in accordance with relevant waste management regulations. The DoW: CoP will be employed to promote the re-use and repurposing of soils where possible.
- 17.2.38 During the construction phase of the Proposed Development, the contractor will be required to develop and implement a construction phase Site Waste Management Plan (SWMP), in line with relevant guidance (commitment **W1** in **Appendix C**). The SWMP will be developed in detail by the appointed contractors and be submitted via the outline CEMP.
- 17.2.39 Should any contamination be encountered, all contaminated materials will be characterised both chemically and physically in line with BS EN 14899:2005 'Characterisation of Waste - Sampling of Waste Materials' to classify the waste and ensure correct disposal routes are selected.
- 17.2.40 With regards to the temporary storage of waste materials on site during construction, designated, bunded and appropriately surfaced

areas will be constructed to manage the risks of migration of contaminants to receptors in line with industry standards, as will be set out in the WMP.

### Proposed Scope of the EIA

17.2.41 On the basis of the sensitivities described above, the potential effects proposed to be scoped into or out of the EIA for this topic are presented in **Tables 17.5** and **17.6**.

**Table 17.5 Elements Waste Assessment Proposed to be Scoped In to the EIA**

Element	Scope	Rationale
Handling and disposal of excess soils generated during construction.	Scoped In.	Potential effects of disposal of excess soils placing a burden on regional landfill capacity to be assessed.
Handling and disposal of construction wastes generated during construction.	Scoped In.	Potential effects of disposal of general construction wastes placing a burden on regional landfill capacity to be assessed.
Handling and disposal of operational phase wastes.	Scoped In.	Potential effects of disposal of operational phase wastes placing a burden on regional landfill capacity to be assessed, although noting that operational phase waste volumes will be significantly less than construction phase.

**Table 17.6 Elements Waste Assessment Proposed to be Scoped Out of the EIA**

Element	Scope	Rationale
Handling and disposal of decommissioning phase wastes.	Scoped Out.	Decommissioning will take place after an anticipated 40 years of operation, will consider the legal requirements at the time and will be undertaken in accordance with a decommissioning plan approved by the relevant regulatory authority, as per commitment <b>W3</b> .

17.2.42 Assessment of waste during the entirety of the decommissioning phase is not proposed to be scoped out. Instead, the ES will:

- Provide detailed estimates, categorised by type and quantity, of anticipated residues, emissions, and waste generated throughout the decommissioning phase, in accordance with Schedule 4 of the EIA Regulations; and
- Provide an assessment of the likely significant effects arising from the transportation and disposal of waste generated during the decommissioning phase, which may result in significant effects.

17.2.43 This section deals with solid wastes only. Potential effects associated with wastewater discharges arising from the development are considered in **Chapter 16** of this Scoping Report.

### **Assumptions, Limitations and Uncertainties**

17.2.44 As the design progresses, the anticipated volumes of waste which will be generated during construction and operational of the Proposed Development will be better understood. However, the true volumes of waste which will be generated will not be known. Therefore, the EIA with respect to waste will be based on reasonable worst-case assumptions arising across the different design scenarios.

17.2.45 The Proposed Development will comply with all relevant waste legislation in relation to waste handling, storage, transport, and disposal (e.g. The Waste Framework Directive). A description of the potential streams and volumes of construction materials and waste disposal will be described within Chapter 3 of the ES. The use of materials and waste management processes will follow the waste hierarchy such that they would be reused where possible before recycling and disposal were considered. In addition to this, the SWMP will set out best practice recommendations for how construction materials and waste would be managed on-site, and opportunities to recycle waste would be explored, in line with statutory requirements (such as the Environment Act 2021) to minimise waste to landfill.

17.2.46 The construction of the Proposed Development will follow measures outlined in an outline CEMP and SWMP. These plans, secured through the DCO, will ensure standard industry practices are used to manage environmental impacts and on-site material and waste. An outline CEMP and SWMP will be submitted with the DCO application. Taking

the above into account, it is not proposed to prepare a separate waste chapter as part of either the PEIR or ES.

### 17.3 GLINT AND GLARE

#### Introduction

- 17.3.2 Glint and glare is defined as the reflection of sunlight which may cause harm, discomfort or distraction to sensitive receptors. Glints are momentary flashes of bright light, whilst glare is a continuous source of bright light<sup>256</sup>.
- 17.3.3 Solar PV modules are engineered to capture light instead of reflecting it. When light is reflected from solar PV modules, it leads to a decrease in energy output. The dark coloration of solar PV modules is attributed to their anti-reflective coatings, and they are constructed using low-iron, ultra-clear glass that features specialised coatings and textures to optimise absorption. This combination of elements greatly enhances the electrical energy production of the panels while substantially minimising reflected light.
- 17.3.4 There is an absence of published guidance for a methodological approach to glint and glare assessment; however, the following guidance has been considered:
- Renewable and low carbon energy<sup>257</sup> states:  
*"Particular factors a local planning authority will need to consider include... the effect on landscape of glint and glare and on neighbouring uses and aircraft safety".*
  - NPS EN-3<sup>258</sup> states in Sections 2.10.102 – 2.10.106:  
*"Solar panels are specifically designed to absorb, not reflect, irradiation. However, solar panels may reflect the sun's rays at certain angles, causing glint and glare. Glint is defined as a momentary flash of light that may be produced as a direct reflection of the sun in the solar panel. or at an angle of the sun and the receptor. Applicants should map receptors qualitatively to identify potential glint and glare issues and determine if a glint and glare assessment is necessary as part of the application.*

*When a quantitative glint and glare assessment is necessary, applicants are expected to consider the geometric possibility of glint and glare affecting nearby receptors, and provide an assessment of potential impact and impairment based on the angle and duration of incidence and the intensity of the reflection.*

*The extent of reflectivity analysis required to assess potential impacts will depend on the specific project site and design. This may need to account for 'tracking' panels if they are proposed as these may cause differential diurnal and/or seasonal impacts.*

*When a glint and glare assessment is undertaken, the potential for solar PV panels, frames and supports to have a combined reflective quality may need to be assessed, although the glint and glare of the frames and supports is likely to be significantly less than the panels."*

### **Proposed Scope of the Assessment**

- 17.3.5 As appropriate, the results and recommendations of any glint and glare calculations will be incorporated into the Proposed Development design and presented as a technical appendix to the ES. It is therefore proposed to exclude a glint and glare chapter from the EIA. However, a detailed stand-alone glint and glare assessment will be undertaken and submitted as a technical appendix, considering ground-based (residential dwellings, PRoWs, road, and rail) and airborne (airfields, Air Traffic Control Towers, and approaching aircrafts) receptors. If any potential significant glint and glare effects are identified (for example, on PRoW or roads), these will be considered within the relevant individual chapters of the ES, such as Landscape and Visual or Transport and Access.
- 17.3.6 The glint and glare assessment will focus solely on the operational phase of the development, as this will be the only phase where solar PV modules will be present in their entirety across the Site, and would therefore represent the maximum impact of the worst case scenario in terms of impacts from glint and glare.
- 17.3.7 Results and recommendations from this assessment will influence the design of the Proposed Development, to reduce any potential glint and glare impacts on likely receptors. A description of any relevant

mitigation measures and safety considerations of the Proposed Development will be included within the Proposed Development Description chapter of the ES.

### **Proposed Study Area**

17.3.8 Two Study Areas are proposed for the glint and glare assessment:

- 10 km Study Area for active aviation receptors (airfields, Air Traffic Control Towers, and approaching aircrafts); and
- 1 km Study Area for identifying ground receptors (road users, residential dwellings and PRowS).

17.3.9 There is currently no formal guidance concerning the maximum distance at which glint and glare should be assessed. From a technical standpoint, there is no maximum distance for potential reflections. The significance of a reflection, however, decreases with distance because the proportion of an observer's field of vision that is taken up by the reflecting area diminishes as the separation distance increases. Terrain and screening by vegetation are also more likely to obstruct an observer's view at longer distances. The parameters outlined above, along with considerable experience from numerous glint and glare assessments conducted, indicate that it is suitable to consider receptors located within 1 km of solar PV array regarding glint and glare impacts on roads and residential properties.

17.3.10 Any predicted impacts towards the ground-based infrastructure (e.g. roads and dwellings) will be covered within the Landscape and Visual assessment of the ES. This is because the Site will be visually screened through techniques such as hedgerow screening and if necessary, Site layout modification.

17.3.11 There is no formal distance within which aviation effects must be modelled. However, in practice, concerns are most often raised for developments within 10 km of a licensed airport. Requests for modelling at ranges of 10-20 km are far less common. The assessment of aviation impacts for projects located more than 20 km away is uncommon for solar developments. Therefore, any airfields or airports within 10 km of the solar panel boundary would be considered.

## Baseline conditions

17.3.12 There are several aviation receptors identified in the wider area as listed below:

- Approximately 2.2 km northeast is the Rayne Hall Farm Airfield;
- Approximately 2.3 km north is the Andrewsfield Airfield; and
- Approximately 13 km west is Stansted Airport. As this receptor is located outside of the 10 km Study Area, it proposed to scope it out of the assessment.

17.3.13 There are numerous ground-based receptors identified in the study area, including PRoWs, roads, and residential receptors. Those located within the zone of theoretical visibility of the proposed solar panels will be considered within the assessment.

## Potential Significant Effects and Mitigation

17.3.14 Measures to reduce impacts on ground-based receptors will be implemented within the LVIA and via the outline Landscape and Ecological Management Plan, which will illustrate methods and locations of visual screening. Through the iterative design process, mitigation measures should be sufficient to negate any potential significant glint and glare effects on ground-based receptors.

17.3.15 Detailed modelling to assess aviation activity associated with aviation receptors will determine whether any changes to the site configuration may be required to mitigate significant effects. If required, it is expected that changes to the layout of the solar PV array would be sufficient to remove any significant effects upon aviation activity

17.3.16 Should there be any areas of the Proposed Development where adverse impacts cannot be mitigated, it may be necessary to remove areas of solar PV modules from the design.

## 17.4 HEAT AND RADIATION

17.4.1 Given the scale and characteristics of the Proposed Development, it is expected that there will be no substantial sources of heat or radiation during the construction, operation, or decommissioning phases. Since there are no notable sources of heat or radiation during these stages, no significant effects are anticipated. No mitigation measures are proposed as there will be no considerable sources of heat or radiation

at any phase of the Proposed Development. It is therefore proposed to exclude heat and radiation from the scope of the EIA.

## 17.5 TELECOMMUNICATIONS AND UTILITIES

- 17.5.1 The Proposed Development has the potential to affect existing utility infrastructure located at the Site. During decommissioning, ground disturbance would be anticipated no worse than during construction, and localised in the same places. This will be considered further in the Decommissioning Environmental Management Plan. Given the nature of the Proposed Development, potential impacts on existing utility infrastructure will be assessed only during the construction phase, considering this as the worst-case scenario.
- 17.5.2 A utility search will be conducted to identify any existing infrastructure constraints within the Site and the selected Cable Option. Further consultation will be carried out with the relevant utility companies (including Essex and Suffolk Water, National Grid etc.) to confirm the information from the utility search is accurate and up to date. This information will be used to inform the layout of the Proposed Development.
- 17.5.3 The Outline CEMP will encompass any additional mitigation measures required to safeguard below-ground utilities from interference during construction. The Applicant would also expect to agree protective provisions with statutory undertakers, and bespoke protective provisions with utility owners if required, to ensure the DCO includes appropriate protections and restrictions on the Applicant's exercise of its powers, for the protection of utilities.
- 17.5.4 Therefore, taking the above information into account it is not proposed to prepare a separate utilities chapter for the PEIR or ES.

## 17.6 MAJOR ACCIDENTS AND DISASTERS

### Introduction

- 17.6.2 This section sets out the approach and scope of the assessment of major accidents and disasters, which will consider the vulnerability of the Proposed Development to such risks. The assessment will identify likely significant effects.

## Topic-Specific Legislation and Guidance

17.6.3 This scope of the major accidents and disasters assessment section of the EIA has been developed in line with the following key legislation, policy, and associated guidance:

- Article 8 of Schedule 4 of the EIA Regulations<sup>259</sup>; and
- Major Accidents and Disasters in EIA: An IEMA Primer<sup>260</sup>.

17.6.4 Article 8 of Schedule 4 of the EIA Regulations requires an ES to consider the vulnerability of a development to the risk of major accidents and/or disasters.

*"Major Accidents and Disasters in EIA: An IEMA Primer' provides guidance on the consideration of major accidents and disasters, it has been structured around a typical assessment approach and offers a proportionate method for considering major accidents and/or disasters through screening, scoping and assessment. This guidance defines Major Accidents and Disasters as described below:*

1. *A 'Major Accident' is an event "that threaten immediate or delayed serious environmental effects to human health, welfare and/or the environment and require the use of resources beyond those of the client or its appointed representatives to manage. Whilst malicious intent is not accidental, the outcome (e.g. train derailment) may be the same and therefore many mitigation measures will apply to both deliberate and accidental events"; and*
2. *A 'Disaster' "may be a natural hazard (e.g. earthquake) or a man-made/external hazard (e.g. act of terrorism) with the potential to cause an event or situation that meets the definition of a major accident".*

## Proposed Study Area

17.6.5 The proposed study area will focus on the area within the Site Boundary and its immediate surroundings, including areas where potential hazards could impact the Proposed Development and its likely receptors. Study areas vary depending on the nature of the risk and receptors and are specified in each relevant chapter or appendix.

## Potential Effects and Mitigation

17.6.6 Following the IEMA guidance, potential hazards that meet the below criteria have been scoped out of the EIA:

- The Proposed Development is not vulnerable to the hazard or does not have the potential to cause the hazard;
- The hazard is not likely to result in effects that lead to fatality, multiple fatalities, permanent injury, widespread/irreversible harm or damage i.e. the hazard will not result in a major accident and/or disaster;
- There is no potential pathway or receptor in terms of EIA regulations;
- It is a workplace hazard that will only impact the workers directly involved i.e. fall from height or misuse of tools. These are considered to be an occupational health and safety incident that is not included within an EIA and instead managed through compliance of the Management of Health and Safety at safety and non-safety-related legislation, as detailed below:
  - Health and Safety at Work etc. Act 1974<sup>261</sup>;
  - The Management of Health and Safety at Work Regulations 1999<sup>262</sup>;
  - The Workplace (Health, Safety and Welfare) Regulations 1992<sup>263</sup>; and
  - Construction (Design and Management) (CDM) 2015 Regulations.

17.6.7 Significant effects in relation to the risk of Major Accidents and Disasters are not anticipated given the nature, scale and location of the Proposed Development. The risk of major accidents and disasters will continue to be considered throughout the design process of the Proposed Development. This will include siting the potentially hazardous equipment, such as the feeder substation and other grid infrastructure, at a suitable distance from sensitive receptors.

17.6.8 The construction, operation and decommissioning phases of the Proposed Development have the potential to give rise to major accidents and/or disaster. **Table 17.7** presents a list of possible major accidents and disasters that will require consideration as the Proposed Development design progresses. This list of possible major accidents and disasters will continuously be reviewed with the design

team during the design process to ensure the risks are understood and addressed through design where appropriate.

**Table 17.7 Major Accidents or Disasters Considered Possible at this Stage**

Major accident and/or disaster	Potential receptor	Comments
Flooding	Property and people in areas of increased flood risk	The vulnerability of the Proposed Development to flooding, and its potential to exacerbate flooding, will be covered in the Flood Risk Assessment and Drainage Strategy, and also reported in the ES, as described in <b>Chapter 16</b> of this Scoping Report. It will cover any flood risk to the Proposed Development and any increased flood risk caused by the Proposed Development.
Road Accidents	Road users	The risk of road collisions and accidents will be addressed in the Traffic and Transport Assessment of the ES, as described in <b>Chapter 15</b> of this Scoping Report.
Aircraft Disaster	Pilots and Aircraft	The potential for glint and glare to affect aircraft will be considered within the glint and glare assessment, which will form a technical appendix to the ES.  If any risks are identified, mitigation will be considered and, where necessary, incorporated into the Proposed Development's design.
Utilities failure (gas, electricity, water, sewage, oil, communications)	Employees and local residents	The Proposed Development has the potential to affect existing utility infrastructure below ground. The Proposed Development does not include infrastructure of a height that would affect existing overhead utilities. To identify any existing infrastructure constraints, both consultation and a desk-based study will be undertaken. It is known that

Major accident and/or disaster	Potential receptor	Comments
		there is an overhead line located within the Site.
Plant disease	Habitats and species	New planting may be susceptible to biosecurity issues, such as the increased prevalence of pests and diseases, due to climate change. The planting design and outline Landscape and Ecological Management Plan (LEMP) will take account of and manage biosecurity risks.

- 17.6.9 It should be noted that, as Battery Energy Storage Systems (BESS) are not to be utilised as part of the Proposed Development, battery fire is not considered to be a risk for the Proposed Development.
- 17.6.10 There are no known COMAH Sites within 5 km of the Site.
- 17.6.11 During all phases of the Proposed Development, measures will be implemented in accordance with health and safety legislation, regulations, and industry guidance to ensure that risks are suitably controlled and managed and minimise risks to human and environmental receptors. The appropriate measures and controls in line with relevant legislation and guidance will be included in the Outline CEMP and other appendices where relevant which would be provided as part of the ES. A Drainage Strategy will also be produced to support the Flood Risk Assessment for the Proposed Development.

### Technical Scope and Approach to EIA

- 17.6.12 Where design mitigation is unable to remove the potential interaction between a major accident or disaster and a particular technical topic, as described in **Table 17.7** the potential effects resulting from major accidents or disasters will be reported in the relevant topic chapter and assessments.
- 17.6.13 Therefore, it is not proposed that a standalone chapter on the topic of major accidents and disasters be prepared as part of either the PEIR or ES.

## 17.7 HUMAN HEALTH

- 17.7.1 It is proposed that consideration of the potential effects to human health as a result of the Proposed Development will be covered through the findings of other ES topic assessments undertaken as part of the EIA process, as follows:
- Air Quality (**Chapter 7**);
  - Noise and Vibration (**Chapter 13**);
  - Landscape and Visual (**Chapter 12**); and
  - Traffic and Transport (**Chapter 15**).
- 17.7.2 Each of these chapters within the EIA Scoping Report and subsequent PEIR and ES will consider the potential effects to human health within their own assessments. It is therefore not proposed that a standalone chapter on the topic of human health be prepared as part of either the PEIR or ES.

## 17.8 TRANSBOUNDARY EFFECTS

- 17.8.1 Regulation 32 of the Infrastructure EIA Regulations<sup>264</sup> requires the consideration of any likely significant effects on the environment of another European Economic Association State. The consideration of transboundary effects is also detailed within the Planning Inspectorate's Advice Note Seven 2020<sup>265</sup>.
- 17.8.2 Given the characteristics and location of the Proposed Development, it is not expected that the Proposed Development would result in any significant environmental impacts on the environment of another European Economic Area State. Therefore, a transboundary screening matrix is proposed to be excluded for the scope of the EIA.

## 17.9 ELECTROMAGNETIC FIELDS

- 17.9.1 Electromagnetic fields (EMFs) are generated by the flow of electricity, for example along electrical cables. NPS EN-5 highlights that electrical fields are eliminated by placing cables underground, however underground cables still generate magnetic fields.
- 17.9.2 The Planning Inspectorate's Technical Advice for Scoping Solar Development<sup>266</sup> states that:
- "Where proposed cables are over 132kV, an EMF assessment should be provided in an appendix to the Environmental Statement. This should include the location, routing and voltages of any cables over*

*132kV and a risk assessment to any human and ecological sensitive receptors within the ZoI.”*

- 17.9.3 The voltage of underground cables to be used for the Proposed Development is currently not anticipated to exceed 132 kV. Therefore, it is proposed that a separate chapter for EMFs is scoped out of the PEIR and ES and an EMF assessment is not deemed necessary in accordance with the Planning Inspectorate’s Technical Advice. However, should the design of the Proposed Development change to include underground cables with a voltage greater than 132 kV, in line with Planning Inspectorate Guidance, an EMF assessment would be submitted as an appendix to the ES.

## 17.10 OTHER ENVIRONMENTAL TOPICS PROPOSED TO BE SCOPED OUT

- 17.10.1 On the basis of the likely sensitive receptors and aspects of the Proposed Development, the potential effects proposed to be scoped into and out of the EIA for this topic are presented in **Table 17.7**.

**TABLE 17.7 Elements of Other Environmental Topics Chapter  
Proposed to be Scoped Out of the EIA**

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
<b>Construction Phase</b>		
Assessment of Glint and Glare effects during the construction phase.	Scoped Out.	The operational phase will be the only phase of the development where solar PV will be present in its entirety across the Site.
<b>Operational Phase</b>		
Assessment of the Glint and Glare impact on aviation receptors (airfields, Air Traffic Control Towers, and incoming aircraft) located beyond 10 km from the Site.	Scoped Out.	Aviation receptors outside 10 km of the Site are unlikely to experience significant effects, primarily due to reduced significance of impact as distance increases from the receptor.

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
Assessment of the Glint and Glare impact on round receptors (road users, residential dwellings and PRowS) located beyond 1 km from the Site.	Scoped Out.	Experience of glint and Glare assessment, significance of reflection decreasing over distance, terrain and screening ensure significant effects will not be experienced outside 1 km of the Site.
Assessment of Telecommunications and Utilities for the operational phase.	Scoped Out.	The construction phase will be the only phase that will cause potential for impacts to below-ground utilities.
<b>Decommissioning Phase</b>		
Assessment of Glint and Glare effects for the decommissioning phase.	Scoped Out.	The operational phase will be the only phase of the development where solar PV will be present in its entirety across the Site.
Assessment of Telecommunications and Utilities for the decommissioning phase.	Scoped Out.	The construction phase will be the only phase that will cause potential for impacts to below-ground utilities, as it is the Applicant's preference for the buried cables such as the 132 kV cable remains in place after the Proposed Development has been decommissioned. Advice is being sought from ECC regarding the option for leaving the cable in situ.
<b>All Phases</b>		
Requirement for a separate Waste chapter of the ES.	Scoped Out.	Assessment of handling and disposal of waste generated will be included within the Other Environmental Issues chapter of the ES.
Requirement for a separate Glint and	Scoped Out.	The full Glint and Glare assessment will be included as an appendix of the Landscape and Visual ES chapter.

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
Glare chapter of the ES.		
Requirement for a separate Human Health chapter of the ES.	Scoped Out.	The Human Health topic will be assessed within Air Quality, landscape and Visual, Traffic & Transport and Noise and Vibration chapters of the ES.
Requirement for a separate Telecommunications and Utilities chapter of the ES.	Scoped Out.	The DCO will include appropriate protections and restrictions for the avoidance or disruptions of utilities within its design such as minimum avoidance buffers for intrusive works.
Requirement for a separate Major Accidents and Disasters chapter of the ES.	Scoped Out.	Potential effects resulting from major accidents or disasters will be reported in the relevant topic chapters of the ES and potential significant effects will be mitigated through best practice techniques outlined in the CEMP, as per commitments <b>MAD1</b> and <b>MAD2</b> . The risk of such incidents will be considered throughout the design process of the Proposed Development, including the placement of hazardous equipment at a safe distance from sensitive receptors. Measures will be implemented in accordance with health and safety legislation, regulations, and industry guidance to ensure risks are suitably controlled and managed, minimising risks to human and environmental receptors. There are no known COMAH Site within 5 km of the Site.
Requirement for a separate Population chapter of the ES.	Scoped Out.	Assessment of effects on population as a result of the Proposed Development will be included within the Socio-economic and Land Use chapter of the ES.

Potential Effect/Topic	Proposal for Assessment Within EIA	Rationale
Assessment of Transboundary Effects.	Scoped Out.	The Proposed Development is not expected to cause significant environmental impacts on other European Economic Area States due to its characteristics and location.
Assessment of Electromagnetic Fields.	Scoped Out.	<p>Underground cables for the Proposed Development are expected to be up to 132 kV. Therefore, are not expected to exceed the 132 kV threshold, so an EMF chapter is proposed to be excluded from the ES, as an assessment is not required per the Planning Inspectorate's Technical Advice.</p> <p>If the design changes to include cables over 132 kV, an EMF assessment will be added as an appendix to the ES.</p>

## 18. CUMULATIVE EFFECTS ASSESSMENT

### 18.1 INTRODUCTION

- 18.1.1 This chapter sets out the proposed approach to the assessment of the potential cumulative effects of the Proposed Development. Cumulative effects are defined as those for which the impacts (beneficial or adverse, direct and indirect, long-term and short-term impacts) arise from a range of activities throughout an area or region, where each individual effect may not be significant if taken in isolation. Consistent with Schedule 4 of the EIA Regulations, the ES must assess the potential cumulative effects of the Proposed Development on receptors.

### 18.2 APPROACH TO CUMULATIVE EFFECTS ASSESSMENT (CEA)

- 18.2.1 The Planning Inspectorate's advice on cumulative effects assessment (relevant to nationally significant infrastructure projects)<sup>267</sup> emphasises the importance of considering cumulative effects in the context of the EIA Regulations and EN-1.
- 18.2.2 The CEA for the Proposed Development will be undertaken in line with the four-staged approach set out in the Planning Inspectorate's advice note, as follows:
- Stage 1: Establish the Project's Zone of Influence (ZoI) and identify a list of other developments within it;
  - Stage 2: Identify a shortlist of other developments for cumulative effects assessment based on their potential to have similar effects to those of the Proposed Development on the same receptors;
  - Stage 3: Information gathering; and
  - Stage 4: Cumulative Effects Assessment.

### 18.3 EFFECT INTERACTIONS

- 18.3.1 The EIA will predict both beneficial and adverse effects during the construction, operation, and decommissioning of the Proposed Development. These effects are classified as negligible, minor, moderate, or major. It is theoretically possible for multiple effects on a single receptor or receptor group to interact or combine, resulting in a significantly combined overall effect.
- 18.3.2 The IEMA guidance on CEA recognises two types of cumulative effects for assessment<sup>268</sup>, which are:

- Intra-project effects – These effects occur where a single receptor is affected by more than one source of effect arising from different aspects of the project. An example of an intra-project effect would be where a local resident is affected by dust, noise and traffic disruption during the construction of a scheme, with the result being a greater nuisance than each individual effect alone; and
- Inter-project effects – These effects occur as a result of a number of developments, which individually might not be significant, but when considered together could create a significant cumulative effect on a shared receptor and will include developments separate from and related to the project.

18.3.3 The following approach will be adopted for the assessment of cumulative assessments, based on the nature of the Proposed Development, other existing developments and/or approved developments being considered, the types of receptors being assessed and the information available to inform the assessment.

### **Assessing Intra-Cumulative Effects**

18.3.4 The Planning Inspectorate's advice note on cumulative effects assessment states that:

18.3.5 *"Cumulative effects with 'other existing and, or approved development' are separate from an assessment of interrelationships between aspects for the proposed NSIP (such as between ecology and hydrology)..."*

18.3.6 Intra-project effects require consideration of technical assessments of likely significant effects and therefore will be reported in the Cumulative effects chapter of the PEIR and ES. Assessment will be qualitative, based on professional judgment following review of the conclusions of the technical assessments taken together and in-combination.

18.3.7 The assessment will be based on effects of 'minor' or greater significance only ('negligible' residual effects will not be considered). The assessment will also include consideration of where multiple non-significant effects could combine to become significant. The study area for the assessment of intra-project cumulative effects will be informed by the study areas for the individual environmental factor assessments.

## Assessing Inter-Cumulative Effects

### **Stage 1 (Establishing a long list of 'other existing development and/or approved development')**

- 18.3.8 The Planning Inspectorate's advice on CEA states: "*Stages 1 and 2 should be undertaken early in the pre-application stage and ideally before requesting a scoping opinion. Applicants should make use of the EIA scoping process to provide information on the CEA, to ensure it is focussed and proportionate. This provides an opportunity to request information from the local authorities about developments to include in the assessment. Stages 1 and 2 are set out sequentially in this advice but they may be undertaken together.*"
- 18.3.9 Stage 1 of the CEA methodology involves establishing the Proposed Development's ZoI and identifying a long list of other developments for inclusion in the assessment. In developing the cumulative long list, only the following types of other existing developments and/or approved developments (with a valid planning permission), projects with submitted planning, projects on the Planning Inspectorate's Programme of projects where an EIA scoping report has been submitted, and developments under construction have been considered for inclusion:
- Employment developments over 1000 square meters (m<sup>2</sup>);
  - Residential developments of 10+ dwellings;
  - Minerals and waste applications;
  - Industrial developments over 1000 sqm;
  - NSIP developments (as defined by the Planning Act 2008);
  - Transport infrastructure developments (trunk roads or motorways only); and
  - Energy infrastructure developments.
- 18.3.10 Stage 1 of the CEA involves determining whether a development falls within the ZoI for the technical disciplines covered in this Scoping Report. The ZoIs for these disciplines are based on the selected 'Study Area' for each discipline. Consequently, the ZoIs and Study Areas vary by discipline. Relevant Study Areas for the scoping stage of the CEA include:
- Air Quality – 250 m of the Site Boundary;
  - Biodiversity and Nature Conservation – 10 km of Site Boundary;

- Climate Change and Greenhouse Gas Assessment – Land within the Site Boundary;
- Cultural Heritage and Archaeology – 3 km of the Site Boundary;
- Ground Conditions and Land Quality – 500 m of the Site Boundary;
- Landscape and Visual – 7.5 km of the Site Boundary;
- Noise and Vibration – 300 m of the Site Boundary;
- Socio-Economics and land Use – Land within the Site Boundary;
- Traffic and Transport – the construction Traffic Route identified in **Chapter 15**; and
- Water Resources and Flood Risk – 1 km of the Site Boundary.

***Stage 2 (Establishing a shortlist of 'other existing development and/or approved development')***

- 18.3.11 Following the formation of the long list, the eligible other existing development and/or approved developments identified require further assessment (Stage 2) to establish a short list of other existing development and/or approved developments which, in combination with the Proposed Development, have the potential to result in significant cumulative effects.
- 18.3.12 The considerations used to determine whether to include or exclude an existing development and/or approved development on the short list will reflect the process established by the Planning Inspectorate's advice note on Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment<sup>269</sup> and have regard to relevant policy and guidance documents and consultation with the appropriate statutory consultation bodies. The other development on the long list will be reviewed against the following criteria to form the short list of other existing development and/or approved developments:
- Temporal considerations – The status of other development in terms of whether its construction could overlap in time with the Proposed Development construction phase is relevant in regard to the potential for cumulative construction-related impacts. The other development to be considered will be limited to a five-year period preceding the date of submission of the ES since planning permissions typically expire after a period of three to five years;

- Taking a worst-case approach, the CEA will assume there will be overlapping operational phases for all the other developments with the operational phase of the Proposed Development, even though it is possible that some of these other developments may not proceed;
- Technical considerations – Not all the impacts of the Proposed Development could lead to cumulative effects with impacts from other development. Also, for the Proposed Development to have cumulative impacts on the same receptor as other developments, the receptor would need to be within a ZoI for the impact concerned; and
- The other development has sufficient environmental assessment information freely and publicly available to inform the inter-project cumulative effects assessment. The assessment of each existing development on the short list will be proportionate to the environmental assessment information available.

18.3.13 Where an existing development and/or approved development meets all of the above criteria, it will be included on the 'short list' and will be taken forward for further consideration in the assessment. The short list will be kept under review, with the intention of agreeing the short list with local authorities and prior to the completion of the ES to allow for a robust assessment of inter-project cumulative effects.

18.3.14 The table provided in **Appendix D** sets out Stages 1 and 2 of the CEA and provides a judgement whether a development should progress to Stage 3. The location of the developments considered at this stage are shown on **Figure 18.1**.

18.3.15 The Applicant welcomes the views of the Planning Inspectorate, and the local authorities, on the suitability of the cumulative developments presented in **Appendix D** and, in particular, welcomes suggestions for any other development known to the local authorities that should be considered as part of the CEA.

### ***Cumulative Effects Assessment stage 3 and 4***

18.3.16 Based on the outcomes of Stages 1 and Stages 2 of the CEA a number of other developments will be taken forward for further consideration in Stages 3 and 4 of the CEA. The number of other developments considered in each topic is likely to vary depending on the size of the topic ZoIs and the likely nature of the impacts from

the other developments (for example, a large housing development being constructed could be considered to have potential cumulative noise effects with the Proposed Development's construction, but to have no likely significant cumulative noise effects during operation of the housing development).

18.3.17 To the extent necessary, further information on short listed developments will be collected and considered in making the EIA topic assessments. Each topic will apply its standard assessment criteria in undertaking the CEA and the mitigation measures already committed to by the Proposed Development will be inherently considered. In considering the likely effects of other developments the CEA would assume that they would all be required to meet regulatory requirements and a standard of good industry practice. Each topic will also consider whether the cumulative effects of the Proposed Development plus other developments would lead to a different (greater) level of significance than that for the Proposed Development alone.

## 18.4 DETERMINING SIGNIFICANT CUMULATIVE EFFECTS

18.4.1 There is no formal guidance on the criteria for determining the significance of cumulative effects. The following principles will be considered when assessing the significance of cumulative effects for both intra-project and inter-project scenarios:

- Whether there is an intra-project and/or inter-project effect on any receptors/resources;
- The nature of the receptors/resources affected;
- How the identified impacts combine to affect the condition of the receptor/resource;
- The probabilities of the impacts occurring in relation to each other in a way that produces a cumulative effect, considering the extent and duration of the impact change;
- The ability of the receptor/resource to absorb further impacts; and
- The likely success of implemented mitigation.

## 18.5 ASSUMPTIONS, LIMITATIONS AND UNCERTAINTIES

18.5.1 The assessment of inter-project cumulative effects will be limited to publicly available information obtained from the relevant planning applications on the planning portals of UDC and BDC and the register

of NSIPs on the Planning Inspectorate's website. For some of the identified other existing developments, relevant information for this assessment may not be available. Where this is the case, the inter-project cumulative effects assessment will be based upon assumptions and professional judgement, reliant on the review of mitigation measures proposed as part of the other existing developments rather than the Proposed Development.

## 19. PROPOSED SCOPE OF THE ENVIRONMENTAL STATEMENT

### 19.1 INTRODUCTION

- 19.1.1 This section outlines the environmental subjects that the EIA should consider, in accordance with the EIA Regulations. Schedule 4 specifies that the ES must provide a detailed account of the environmental aspects that may experience significant impacts due to the Proposed Development.
- 19.1.2 This requirement and the broad categories set out in Schedule 4, along with others which are considered likely to lead to significant environmental effects, have been interpreted and applied in the context of the Proposed Development. **Table 19.1** sets out the EIA regulation topics and shows where they have been approached in subsequent sections of this Scoping Report.

**Table 19.1 EIA Regulations Topics Approached in this Scoping Report**

EIA Regulations Topic	Location within this Scoping Report
Population	Considered in <b>Chapter 15</b> (Traffic and Transport), <b>Chapter 14</b> (Socio-economics and Land Use), <b>Chapter 13</b> (Noise and Vibration) and discrete sections of other ES chapters. Within the ES, there will not be a distinct chapter dedicated to Population.
Air Quality	Considered in <b>Chapter 7</b> (Air Quality).
Biodiversity	Considered in <b>Chapter 8</b> (Biodiversity and Nature Conservation).
Human Health	Considered in <b>Chapter 7</b> (Air Quality), <b>Chapter 13</b> (Noise and Vibration), and <b>Chapter 16</b> (Water Resources and Flood Risk). Within the ES, there will not be a distinct chapter dedicated to Human Health.
Climate	Considered in <b>Chapter 9</b> (Climate Change and Greenhouse Gas Assessment).
Land	Considered in <b>Chapter 11</b> (Ground Conditions and Land Quality).
Soil	Considered in <b>Chapter 11</b> (Ground Conditions and Land Quality).

EIA Regulations Topic	Location within this Scoping Report
Water Resources	Considered in <b>Chapter 16</b> (Water Resources and Flood Risk).
Material Assets	Considered in <b>Chapter 10</b> (Cultural Heritage and Archaeology), and <b>Chapter 11</b> (Ground Conditions and Land Quality).
Cultural Heritage	Considered in <b>Chapter 10</b> (Cultural Heritage and Archaeology).
Landscape and visual	Considered in <b>Chapter 12</b> (Landscape and Visual Impact).
Emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisance, and the disposal and recovery of waste	Considered in <b>Chapter 7</b> (Air Quality), <b>Chapter 13</b> (Noise and Vibration), <b>Chapter 12</b> (Landscape and Visual Impact) and <b>Chapter 17</b> (Other Environmental Topics).

## 19.2 TOPICS NOT INCLUDED IN THE EIA SCOPE

19.2.1 Accordingly, impacts that are unlikely to result in significant effects should be excluded and scoped out of the EIA. The table presented in **Appendix F** outlines topics that have been deemed non-significant and are therefore not included in the EIA, along with the reasoning behind this decision.

## 20. PROPOSED STRUCTURE OF THE ENVIRONMENTAL STATEMENT

20.1.1 The ES will be included within Volume 6 of the DCO Application. Introductory chapters will be found in ES Volume 1, while topic-specific chapters will be in ES Volume 2. Additional ES documents and technical appendices will be included in ES Volume 3, in line with the Planning Inspectorate's Advice on the Preparation and Submission of Application Documents<sup>270</sup>.

20.1.2 **Table 20.1** below presents a draft structure of chapters for the Application's ES.

**Table 20.1 Draft Structure of the ES**

Volume	Chapter	Title
6	0	Non-Technical Summary
	1	Introduction
	2	Planning, Policy and Legislative Context
	3	Description of the Site and Proposed Development
	4	Alternatives and Design Evolution
	5	Consultation
	6	Environmental Impact Assessment Methodology
	7	Air Quality
	8	Biodiversity and Nature Conservation
	9	Climate Change and Greenhouse Gas
	10	Cultural Heritage and Archaeology
	11	Ground Conditions and Land Quality
	12	Landscape and Visual
	13	Noise and Vibration
	14	Socio-Economics and Land Use
	15	Traffic and Transport
	16	Water Resources and Flood Risk
	17	Other Environmental Topics

Volume	Chapter	Title
	18	Cumulative Effects
	19	Summary of Mitigation
	20	Conclusions

20.1.3 Accordingly, impacts that are unlikely to result in significant effects should be excluded and scoped out of the EIA. The table presented in **Appendix F** outlines topics that have been deemed non-significant and are therefore not included in the EIA, along with the reasoning behind this decision.

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**ERM's London Office**

Environmental Resources  
Management Ltd.  
2nd Floor Exchequer Court  
33 St Mary Axe  
City of London  
London, EC3A 8AA

T +020 3206 5200

**[www.erm.com](http://www.erm.com)**